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PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

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|---|---|---|---|
| NEWS | 1 | | Web Page URLs for STN Seminar Schedule - N. America |
| NEWS | 2 | Dec 17 | The CA Lexicon available in the CAPLUS and CA files |
| NEWS | 3 | Feb 06 | Engineering Information Encompass files have new names |
| NEWS | 4 | Feb 16 | TOXLINE no longer being updated |
| NEWS | 5 | Apr 23 | Search Derwent WPINDEX by chemical structure |
| NEWS | 6 | Apr 23 | PRE-1967 REFERENCES NOW SEARCHABLE IN CAPLUS AND CA |
| NEWS | 7 | May 07 | DGENE Reload |

| | |
|---|---|
| NEWS EXPRESS | May 23 CURRENT WINDOWS VERSION IS V6.0a, CURRENT MACINTOSH VERSION IS V5.0C (ENG) AND V5.0JB (JP), AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2001 |
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| NEWS INTER | General Internet Information |
| NEWS LOGIN | Welcome Banner and News Items |
| NEWS PHONE | Direct Dial and Telecommunication Network Access to STN |
| NEWS WWW | CAS World Wide Web Site (general information) |

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FILE 'HOME' ENTERED AT 14:46:47 ON 08 JUN 2001

=> fil reg

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|---|---|---|
| FULL ESTIMATED COST | 0.15 | 0.15 |

FILE 'REGISTRY' ENTERED AT 14:46:52 ON 08 JUN 2001
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STRUCTURE FILE UPDATES: 7 JUN 2001 HIGHEST RN 340127-53-9
DICTIONARY FILE UPDATES: 7 JUN 2001 HIGHEST RN 340127-53-9

TSCA INFORMATION NOW CURRENT THROUGH January 11, 2001

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Structure search limits have been increased. See HELP SLIMIT for details.

```
=> s "9,11-octadecadienoic acid"/cn
L1            1 "9,11-OCTADECADIENOIC ACID"/CN

=> d

L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2001 ACS
RN   1839-11-8  REGISTRY
CN   9,11-Octadecadienoic acid (6CI, 8CI, 9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   .DELTA.9,11-Octadecadienoic acid
CN   9,11-Linoleic acid
CN   Conjugated linoleic acid
CN   Nouracid DE 554
CN   Ricineic acid
CN   Ricinenic acid
FS   3D CONCORD
MF   C18 H32 O2
CI   COM
LC   STN Files:   AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA,
       CANCERLIT, CAOLD, CAPLUS, CHEMCATS, CHEMLIST, CIN, EMBASE, IFICDB,
       IFIPAT, IFIUDB, MEDLINE, PROMT, TOXLINE, TOXLIT, USPATFULL
         (*File contains numerically searchable property data)
     Other Sources:   NDSL**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)


HO2C-(CH2)7-CH=CH-CH=CH-(CH2)5-Me

             147 REFERENCES IN FILE CA (1967 TO DATE)
              25 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
             148 REFERENCES IN FILE CAPLUS (1967 TO DATE)
              14 REFERENCES IN FILE CAOLD (PRIOR TO 1967)


=> s conjugated linoleic acid
           104 CONJUGATED
           506 LINOLEIC
       4960690 ACID
          7636 ACIDS
       4966262 ACID
                 (ACID OR ACIDS)
L2           4 CONJUGATED LINOLEIC ACID
                 (CONJUGATED(W)LINOLEIC(W)ACID)

=> d tot

L2   ANSWER 1 OF 4  REGISTRY  COPYRIGHT 2001 ACS
RN   121250-47-3  REGISTRY
CN   Octadecadienoic acid (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   9,11(or 10,12)-Octadecadienoic acid
CN   Conjugated linoleic acid
MF   C18 H32 O2
CI   IDS, COM
SR   US Environmental Protection Agency
LC   STN Files:   AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAPLUS, CHEMLIST, CIN,
       PIRA, PROMT, TOXLIT, USPATFULL
     Other Sources:   DSL**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)
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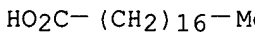
CM 1

CRN 57-11-4
CMF C18 H36 O2



208 REFERENCES IN FILE CA (1967 TO DATE)
7 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
208 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2001 ACS
RN 68015-55-4 REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
result in incomplete search results. For additional information, enter HELP RN* at an online arrow prompt (=>).
CN **Castor oil, polymer with conjugated linoleic acid, glycerol and phthalic anhydride** (CA INDEX NAME)
MF Unspecified
CI PMS, MAN, CTS
PCT Manual registration
LC STN Files: CHEMLIST
Other Sources: NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L2 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2001 ACS
RN 67922-81-0 REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
result in incomplete search results. For additional information, enter HELP RN* at an online arrow prompt (=>).
CN **Fatty acids, tall-oil, polymers with bisphenol A, conjugated linoleic acid, epichlorohydrin and maleic anhydride** (CA INDEX NAME)
MF Unspecified
CI PMS, MAN, CTS
PCT Manual registration
LC STN Files: CHEMLIST
Other Sources: NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L2 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2001 ACS
RN 1839-11-8 REGISTRY
CN 9,11-Octadecadienoic acid (6CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN .DELTA.9,11-Octadecadienoic acid
CN 9,11-Linoleic acid
CN **Conjugated linoleic acid**
CN Nouracid DE 554
CN Ricineic acid
CN Ricinenic acid
FS 3D CONCORD
MF C18 H32 O2
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA,

CANCERLIT, CAOLD, CAPLUS, CHEMCATS, CHEMLIST, CIN, EMBASE, IFICDB, IFIPAT, IFIUDB, MEDLINE, PROMT, TOXLINE, TOXLIT, USPATFULL
(*File contains numerically searchable property data)
Other Sources: NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

$HO_2C-(CH_2)_7-CH=CH-CH=CH-(CH_2)_5-Me$

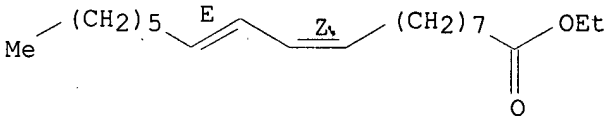
147 REFERENCES IN FILE CA (1967 TO DATE)
25 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
148 REFERENCES IN FILE CAPLUS (1967 TO DATE)
14 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

```
=> s "9,11-octadecadienoic acid"
          8391 "9,11"
          3884 "OCTADECADIENOIC"
       4960690 "ACID"
          7636 "ACIDS"
       4966262 "ACID"
                ("ACID" OR "ACIDS")
L3          331 "9,11-OCTADECADIENOIC ACID"
                ("9,11"(W)"OCTADECADIENOIC"(W)"ACID")

=> d 1-5

L3   ANSWER 1 OF 331  REGISTRY  COPYRIGHT 2001 ACS
RN   330214-86-3  REGISTRY
CN   9,11-Octadecadienoic acid, ethyl ester, (9Z,11E)- (9CI)  (CA
     INDEX NAME)
FS   STEREOSEARCH
MF   C20 H36 O2
SR   CA
LC   STN Files:   CA, CAPLUS

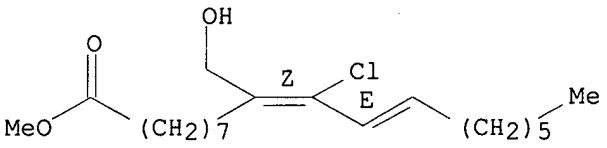
Double bond geometry as shown.
```




1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

```
L3   ANSWER 2 OF 331  REGISTRY  COPYRIGHT 2001 ACS
RN   307318-44-1  REGISTRY
CN   9,11-Octadecadienoic acid, 10-chloro-9-(hydroxymethyl)-, methyl
     ester, (9Z,11E)- (9CI)  (CA INDEX NAME)
FS   STEREOSEARCH
MF   C20 H35 Cl O3
SR   CA
LC   STN Files:   CA, CAPLUS

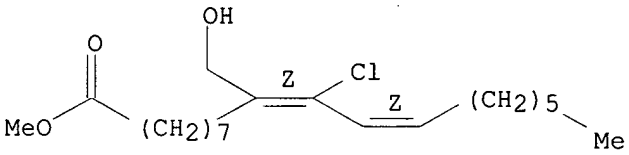
Double bond geometry as shown.
```



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

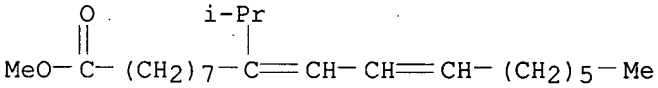
L3 ANSWER 3 OF 331 REGISTRY COPYRIGHT 2001 ACS
RN 307318-42-9 REGISTRY
CN **9,11-Octadecadienoic acid, 10-chloro-9-(hydroxymethyl)-, methyl ester, (9Z,11Z)- (9CI)** (CA INDEX NAME)
FS STEREOSEARCH
MF C20 H35 Cl O3
SR CA
LC STN Files: CA, CAPLUS

Double bond geometry as shown.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

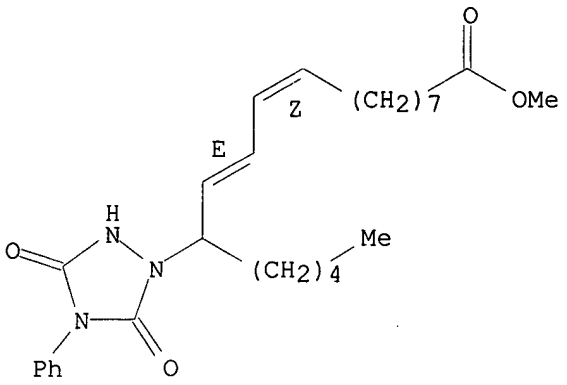
L3 ANSWER 4 OF 331 REGISTRY COPYRIGHT 2001 ACS
RN 307318-41-8 REGISTRY
CN **9,11-Octadecadienoic acid, 9-(1-methylethyl)-, methyl ester (9CI)** (CA INDEX NAME)
FS 3D CONCORD
MF C22 H40 O2
SR CA
LC STN Files: CA, CAPLUS



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L3 ANSWER 5 OF 331 REGISTRY COPYRIGHT 2001 ACS
RN 306727-11-7 REGISTRY
CN **9,11-Octadecadienoic acid, 13-(3,5-dioxo-4-phenyl-1,2,4-triazolidin-1-yl)-, methyl ester, (9Z,11E)- (9CI)** (CA INDEX NAME)
FS STEREOSEARCH
MF C27 H39 N3 O4
SR CA
LC STN Files: CA, CAPLUS, CASREACT

Double bond geometry as shown.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> s "10,12-octadecadienoic acid"/cn
L4 1 "10,12-OCTADECADIENOIC ACID"/CN

=> d

L4 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2001 ACS
RN 22880-03-1 REGISTRY
CN **10,12-Octadecadienoic acid (6CI, 8CI, 9CI)** (CA INDEX NAME)
FS 3D CONCORD
MF C18 H32 O2
CI COM
LC STN Files: AGRICOLA, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS,
IFICDB, IFIUDB, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

$HO_2C-(CH_2)_8-CH=CH-CH=CH-(CH_2)_4-Me$

35 REFERENCES IN FILE CA (1967 TO DATE)
9 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
35 REFERENCES IN FILE CAPLUS (1967 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> fil caplus

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 48.76 | 48.91 |

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FILE LAST UPDATED: 7 Jun 2001  (20010607/ED)

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=> s l1, l2, l4 or "conjugated linoleic acid" or octadecadienoic acid
MISSING OPERATOR L2, L4
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> s l1 or l2 or l4 or "conjugated linoleic acid" or octadecadienoic acid
          148 L1
          348 L2
           35 L4
        72019 "CONJUGATED"
        29688 "LINOLEIC"
            1 "LINOLEICS"
        29688 "LINOLEIC"
                ("LINOLEIC" OR "LINOLEICS")
      2970943 "ACID"
      1172855 "ACIDS"
      3393141 "ACID"
                ("ACID" OR "ACIDS")
          688 "CONJUGATED LINOLEIC ACID"
                ("CONJUGATED"(W)"LINOLEIC"(W)"ACID")
         6855 OCTADECADIENOIC
      2970943 ACID
      1172855 ACIDS
      3393141 ACID
                (ACID OR ACIDS)
         6726 OCTADECADIENOIC ACID
                (OCTADECADIENOIC(W)ACID)
L5        7239 L1 OR L2 OR L4 OR "CONJUGATED LINOLEIC ACID" OR
OCTADECADIENOIC
               ACID

=> s l5 and diabet?
        69089 DIABET?
L6        107 L5 AND DIABET?

=> s l5 (S) diabet?

```
         69089 DIABET?
L7          77 L5 (S) DIABET?

=> s l5 (a) diabet?
         69089 DIABET?
L8           1 L5 (A) DIABET?

=> d

L8   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2001 ACS
AN   1999:718528  CAPLUS
DN   132:221777
TI   Modulation of diabetes by conjugated linoleic acid
AU   Belury, Martha A.; Vanden Heuvel, John P.
CS   Department of Foods and Nutrition, Purdue University, West Lafayette, IN,
     USA
SO   Adv. Conjugated Linoleic Acid Res. (1999), Volume 1, 404-411.  Editor(s):
     Yurawecz, Martin P. Publisher: AOCS Press, Champaign, Ill.
     CODEN: 68IXA3
DT   Conference; General Review
LA   English
RE.CNT  21
RE
(2) Belury, M; J Nutr Biochem 1997, V8, P579 CAPLUS
(4) Gonzalez, F; Biochimie 1997, V79, P139 CAPLUS
(7) Houseknecht, K; Biochem Biophys Res Commun 1998, V244, P678 CAPLUS
(9) Inoue, I; Biochem Biophys Res Commun 1997, V237, P606 CAPLUS
(10) Jiang, J; J Dairy Sci 1996, V79, P438 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT


=> FIL STNGUIDE
COST IN U.S. DOLLARS                        SINCE FILE      TOTAL
                                              ENTRY    SESSION
FULL ESTIMATED COST                           14.64      63.55

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AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Jun  1, 2001 (20010601/UP).

=> fil caplus
COST IN U.S. DOLLARS                        SINCE FILE      TOTAL
                                              ENTRY    SESSION
FULL ESTIMATED COST                            0.00      63.55

FILE 'CAPLUS' ENTERED AT 14:53:54 ON 08 JUN 2001
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FILE COVERS 1947 - 8 Jun 2001  VOL 134 ISS 25

FILE LAST UPDATED: 7 Jun 2001 (20010607/ED)

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=> d ibib abs kwic

L8 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1999:718528 CAPLUS
DOCUMENT NUMBER: 132:221777
TITLE: Modulation of diabetes by conjugated linoleic acid
AUTHOR(S): Belury, Martha A.; Vanden Heuvel, John P.
CORPORATE SOURCE: Department of Foods and Nutrition, Purdue University, West Lafayette, IN, USA
SOURCE: Adv. Conjugated Linoleic Acid Res. (1999), Volume 1, 404-411. Editor(s): Yurawecz, Martin P. AOCS Press: Champaign, Ill.
CODEN: 68IXA3
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review with 21 refs. The topics include promotion of adipocyte differentiation by thiazolidinedione compds. in relation to treatment of type 2 diabetes mellitus, conjugated linoleic acid (CLA) activity relation to peroxisome proliferator-activated receptors, and effects of dietary treatment with CLA isomers on diabetic indexes in rats.
REFERENCE COUNT: 21
REFERENCE(S): (2) Belury, M; J Nutr Biochem 1997, V8, P579 CAPLUS
(4) Gonzalez, F; Biochimie 1997, V79, P139 CAPLUS
(7) Houseknecht, K; Biochem Biophys Res Commun 1998, V244, P678 CAPLUS
(9) Inoue, I; Biochem Biophys Res Commun 1997, V237, P606 CAPLUS
(10) Jiang, J; J Dairy Sci 1996, V79, P438 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT
ST review nutrition **conjugated linoleic acid** **diabetes** treatment

=> s l7 range=,1999
60557 DIABET?
L9 65 L5 (S) DIABET?

```
=> s l9 range=,1997
         50714 DIABET?
L10         35 L5 (S) DIABET?

=> d ti so tot

L10  ANSWER 1 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Increased oxysterol contents in diabetic rat hearts: their involvement in
     diabetic cardiomyopathy
SO   Can. J. Cardiol. (1997), 13(4), 373-379
     CODEN: CJCAEX; ISSN: 0828-282X

L10  ANSWER 2 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Non-insulin dependent diabetes mellitus in Psammomys obesus is
independent
     of changes in tissue fatty acid composition
SO   Lipids (1997), 32(3), 317-322
     CODEN: LPDSAP; ISSN: 0024-4201

L10  ANSWER 3 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Lipid abnormalities of erythrocyte membranes in diabetic patients.
     Analysis of lipid peroxide in erythrocyte membranes and antioxidant
effect
     of nilvadipine on lipid peroxidation
SO   Tonyobyo (Tokyo) (1996), 39(10), 789-796
     CODEN: TONYA4; ISSN: 0021-437X

L10  ANSWER 4 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Fat emulsions containing oils with controlled ratio of linolic acid and
     .alpha.-linolenic acid for diabetic patients
SO   Jpn. Kokai Tokkyo Koho, 5 pp.
     CODEN: JKXXAF

L10  ANSWER 5 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Thin-layer chromatography and high-performance liquid chromatography for
     the assay of fatty acid compositions of individual phospholipids in
     platelets from non-insulin-dependent diabetes mellitus patients: effect
of
     eicosapentaenoic acid ethyl ester administration
SO   J. Chromatogr., B:  Biomed. Appl. (1996), 677(2), 217-23
     CODEN: JCBBEP; ISSN: 0378-4347

L10  ANSWER 6 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   A consecutive study on fatty acid metabolism in liver and kidney and
heart
     and brain in streptozotocin (STZ)-induced diabetic rats
SO   Jiangsu Yiyao (1994), 20(1), 5-7
     CODEN: CIYADX; ISSN: 0253-3685

L10  ANSWER 7 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Effects of brazilin on lipid and phosphatidyl fatty acid composition of
     erythrocyte membrane in streptozotocin-induced diabetic rats
SO   Arch. Pharmacal Res. (1993), 16(2), 147-51
     CODEN: APHRDQ; ISSN: 0253-6269

L10  ANSWER 8 OF 35  CAPLUS  COPYRIGHT 2001 ACS
TI   Cell membrane fatty acid composition in Type 1 (insulin-dependent)
     diabetic patients: Relationship with sodium transport abnormalities and
     metabolic control
SO   Diabetologia (1993), 36(9), 850-856
     CODEN: DBTGAJ; ISSN: 0012-186X
```

L10 ANSWER 9 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Characteristics and specificity of the inhibition of liver glucose-6-phosphatase by arachidonic acid. Lesser inhibitability of the enzyme of diabetic rats
SO Eur. J. Biochem. (1993), 213(1), 461-6
CODEN: EJBCAI; ISSN: 0014-2956

L10 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Biophysical and biochemical alterations of renal cortical membranes in diabetic rat
SO Biochim. Biophys. Acta (1993), 1146(1), 1-8
CODEN: BBACAQ; ISSN: 0006-3002

L10 ANSWER 11 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Nonesterified fatty acids in normal and diabetic rat sciatic nerve
SO Lipids (1992), 27(7), 513-17
CODEN: LPDSAP; ISSN: 0024-4201

L10 ANSWER 12 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Altered desaturase activities and fatty acid composition in liver microsomes of spontaneously diabetic Wistar BB rat
SO Biochim. Biophys. Acta (1992), 1123(3), 296-302
CODEN: BBACAQ; ISSN: 0006-3002

L10 ANSWER 13 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Decreased incorporation of long-chain fatty acids into erythrocyte phospholipids of STZ-D rats
SO Diabetes (1991), 40(12), 1645-51
CODEN: DIAEAZ; ISSN: 0012-1797

L10 ANSWER 14 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Evidence for insulin dependent hepatic microsomal .gamma.-linolenic acid chain elongation in spontaneously diabetic Wistar BB rats
SO Biochim. Biophys. Acta (1992), 1133(2), 187-92
CODEN: BBACAQ; ISSN: 0006-3002

L10 ANSWER 15 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Synergistic and antagonistic effects on fatty acid composition in the liver mitochondria of rats by thyroidectomy and streptozotocin-administration
SO Res. Commun. Chem. Pathol. Pharmacol. (1991), 74(3), 317-26
CODEN: RCOCB8; ISSN: 0034-5164

L10 ANSWER 16 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Differential effects on fatty acid compositions in the liver microsomes of
thyroidectomized or streptozocin induced diabetic rats
SO Chem. Pharm. Bull. (1991), 39(9), 2382-6
CODEN: CPBTAL; ISSN: 0009-2363

L10 ANSWER 17 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI High-performance liquid chromatographic analysis of fatty acid compositions of platelet phospholipids as their 2-nitrophenylhydrazides
SO J. Chromatogr. (1991), 568(1), 25-34
CODEN: JOCRAM; ISSN: 0021-9673

L10 ANSWER 18 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Liver fatty acid composition in the spontaneously diabetic BB rat
SO Arch. Int. Physiol., Biochim. Biophys. (1991), 99(1), 111-21
CODEN: AIPBE4

L10 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Abnormal metabolism of polyunsaturated fatty acids in adrenal glands of diabetic rats
SO Mol. Cell. Endocrinol. (1991), 77(1-3), 217-27
CODEN: MCEND6; ISSN: 0303-7207

L10 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Effects of PP-56 and vitamin E on platelet hyperaggregability, fatty acid abnormalities, and clinical manifestations in streptozocin-induced diabetic rats
SO Diabetes (1991), 40(2), 233-9
CODEN: DIAEAZ; ISSN: 0012-1797

L10 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Fatty acid spectrum of platelet phospholipids in experimental diabetes mellitus complicated by proteinuria
SO Probl. Endokrinol. (1990), 36(3), 76-81
CODEN: PROEAS; ISSN: 0375-9660

L10 ANSWER 22 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Spontaneous diabetes in BB rats: evidence for insulin dependent liver microsomal .DELTA.6 and .DELTA.5 desaturase activities
SO Horm. Metab. Res. (1990), 22(8), 405-7
CODEN: HMMRA2; ISSN: 0018-5043

L10 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Diabetic heart and kidney exhibit increased resistance to lipid peroxidation
SO Biochim. Biophys. Acta (1990), 1047(1), 63-9
CODEN: BBACAQ; ISSN: 0006-3002

L10 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI The effect of chronic fatty acid treatment on lipolysis in 3T3-L1 adipocytes
SO Biochem. Biophys. Res. Commun. (1990), 171(1), 46-52
CODEN: BBRCA9; ISSN: 0006-291X

L10 ANSWER 25 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Diet fat composition alters membrane phospholipid composition, insulin binding, and glucose metabolism in adipocytes from control and diabetic animals
SO J. Biol. Chem. (1990), 265(19), 11143-50
CODEN: JBCHA3; ISSN: 0021-9258

L10 ANSWER 26 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Elevated levels of nonesterified fatty acids in the myocardium of alloxan diabetic rats
SO Lipids (1990), 25(6), 307-10
CODEN: LPDSAP; ISSN: 0024-4201

L10 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Effects of dietary fats on fatty acid composition and .DELTA.5 desaturase in normal and diabetic rats
SO Lipids (1989), 24(10), 882-9
CODEN: LPDSAP; ISSN: 0024-4201

L10 ANSWER 28 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Effect of eicosapentaenoic acid ethyl ester on proteinuria of streptozotocin-induced diabetes mellitus in rats
SO Lipids (1989), 24(9), 765-8

CODEN: LPDSAP; ISSN: 0024-4201

L10 ANSWER 29 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Aspects of polyunsaturated fatty acid metabolism in normal subjects and diabetic patients. Nutritional implications
SO Rev. Fr. Corps Gras (1989), 36(1), 3-10
CODEN: RFCGAE; ISSN: 0035-3000

L10 ANSWER 30 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Increased eicosanoid production in streptozotocin-induced diabetic rats. A study of mesenteric vascular perfusion
SO Tonyobyo (Tokyo) (1989), 32(4), 279-84
CODEN: TONYA4; ISSN: 0021-437X

L10 ANSWER 31 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Membrane lipid alterations and sodium-pumping activity in erythrocytes from IDDM and NIDDM subjects
SO Diabetes (1989), 38(7), 825-31
CODEN: DIAEAZ; ISSN: 0012-1797

L10 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Plasma and cellular zinc levels and membrane lipid composition in streptozotocin diabetic rats
SO Comp. Biochem. Physiol., B: Comp. Biochem. (1989), 93B(2), 409-12
CODEN: CBPBB8; ISSN: 0305-0491

L10 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Effect of high/low dietary linoleic acid levels on the function and fatty acid composition of T-lymphocytes of normal and diabetic rats
SO Diabetes Res. (1988), 8(3), 129-34
CODEN: DIREEM; ISSN: 0265-5985

L10 ANSWER 34 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Fatty acid spectrum of the liver lipids of diabetic (db/db) mice with a course administration of nicotinamide and phosphopantothenate
SO Dokl. Akad. Nauk Ukr. SSR, Ser. B: Geol., Khim. Biol. Nauki (1988), (2), 73-6
CODEN: DNNADO; ISSN: 0201-8454

L10 ANSWER 35 OF 35 CAPLUS COPYRIGHT 2001 ACS
TI Effects of diabetes mellitus on renal fatty acid activation and desaturation
SO Biochem. Pharmacol. (1985), 34(24), 4305-10
CODEN: BCPCA6; ISSN: 0006-2952

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L11 ANSWER 1 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1986:49444 CAPLUS
DOCUMENT NUMBER: 104:49444

TITLE: Effects of diabetes mellitus on renal fatty acid activation and desaturation
AUTHOR(S): Clark, Daniel L.; Queener, Sherry F.
CORPORATE SOURCE: Sch. Med., Indiana Univ., Indianapolis, IN, 46223, USA
SOURCE: Biochem. Pharmacol. (1985), 34(24), 4305-10
CODEN: BCPCA6; ISSN: 0006-2952
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The first direct measurement of .DELTA.-6 desaturase and .DELTA.-9 desaturase (EC 1.3.99.3, acyl-CoA dehydrogenase) activities in the rat kidney is reported. Crude renal cortical homogenates from alloxan-diabetic and from normal rats were assayed for .DELTA.-6 and .DELTA.-9 desaturase activities. The .DELTA.-6 desatn. pathway activity measured with 9,12-**octadecadienoic acid** (linoleic acid) as substrate was increased, while the .DELTA.-9 desatn. pathway measured with hexadecanoic acid (palmitic acid) as substrate was unchanged in **diabetic** renal cortex, suggesting that the 2 enzymes are regulated independently in this tissue. In contrast to the kidney, .DELTA.-6 desaturase pathway activity was unchanged and the .DELTA.-9 desaturase pathway activity was greatly depressed in diabetic liver. When exogenous long-chain acyl-CoA synthetase (EC 6.2.1.3) was added to the .DELTA.-6 desaturase assay system, the rate of .DELTA.-6 desatn. in normal kidney increased to a rate similar to that found in diabetic kidney; rates in diabetic exts. were unchanged. Apparently, the rate of fatty acid substrate activation to the CoA ester limits the rate of .DELTA.-6 desatn. in normal renal cortex, and the rate of fatty acid activation by long-chain acyl-CoA synthetase activity is increased in diabetic renal cortex. Direct measurement of the activity of long-chain acyl-CoA synthetase demonstrated that its activity was indeed increased in the renal cortex of diabetic rats.

AB The first direct measurement of .DELTA.-6 desaturase and .DELTA.-9 desaturase (EC 1.3.99.3, acyl-CoA dehydrogenase) activities in the rat kidney is reported. Crude renal cortical homogenates from alloxan-diabetic and from normal rats were assayed for .DELTA.-6 and .DELTA.-9 desaturase activities. The .DELTA.-6 desatn. pathway activity measured with 9,12-**octadecadienoic acid** (linoleic acid) as substrate was increased, while the .DELTA.-9 desatn. pathway measured with hexadecanoic acid (palmitic acid) as substrate was unchanged in **diabetic** renal cortex, suggesting that the 2 enzymes are regulated independently in this tissue. In contrast to the kidney, .DELTA.-6 desaturase pathway activity was unchanged and the .DELTA.-9 desaturase pathway activity was greatly depressed in diabetic liver. When exogenous long-chain acyl-CoA synthetase (EC 6.2.1.3) was added to the .DELTA.-6 desaturase assay system, the rate of .DELTA.-6 desatn. in normal kidney increased to a rate similar to that found in diabetic kidney; rates in diabetic exts. were unchanged. Apparently, the rate of fatty acid substrate activation to the CoA ester limits the rate of .DELTA.-6 desatn. in normal renal cortex, and the rate of fatty acid activation by long-chain acyl-CoA synthetase activity is increased in diabetic renal cortex. Direct measurement of the activity of long-chain acyl-CoA

synthetase demonstrated that its activity was indeed increased in the renal cortex of diabetic rats.

L11 ANSWER 2 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:447135 CAPLUS
DOCUMENT NUMBER: 115:47135
TITLE: Abnormal metabolism of polyunsaturated fatty acids in adrenal glands of diabetic rats
AUTHOR(S): Igal, Ruben A.; Mandon, Elisabet C.; De Gomez Dumm, Irma N. T.
CORPORATE SOURCE: Inst. Invest. Bioquim., UNLP, La Plata, 1900, Argent.
SOURCE: Mol. Cell. Endocrinol. (1991), 77(1-3), 217-27
CODEN: MCEND6; ISSN: 0303-7207
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Studies carried out on the adrenal glands of exptl. diabetic rats have shown an important inhibition in polyenoic fatty acid biosynthesis. This effect was demonstrated by testing the activities of long-chain fatty acyl-CoA synthetase, the .DELTA.5- and .DELTA.6-desaturases of the (n-6) essential fatty-acid series and the .DELTA.6-desaturase of the (n-3) series in liver and adrenal microsomes. The depression in desaturating activity in the insulin-deprived animals was independent of that produced on acyl-CoA-thioester biosynthesis. Expts. measuring the incorporation and transformation of [1-14C]eicosa-8,11,14-trienoic acid in adrenocortical cells isolated from streptozotocin-diabetic animals demonstrated inhibition of arachidonic acid biosynthesis compared to controls. Insulin injections in diabetic rats partially restored the .DELTA.5- and .DELTA.6-desaturase activities. This effect could result from direct action by the hormone since the restoration was reproduced when arachidonic acid biosynthesis was added to the incubation medium of adrenocortical cells isolated from diabetic animals. The results of the present study provide new information about the implication of this abnormal metab. in the adrenal gland of diabetic rats.
IT 60-33-3D, 9,12-**Octadecadienoic acid** (Z,Z)-, CoA complex
RL: FORM (Formation, nonpreparative)
(formation of, from linoleic acid, in adrenal gland and liver, in **diabetes** mellitus, long-chain acyl-CoA synthetase in relation to)
IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 506-32-1 6217-54-5 24880-45-3 25182-74-5 28874-58-0
RL: BIOL (Biological study)
(of adrenal gland, in **diabetes** mellitus)

L11 ANSWER 3 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1997:337439 CAPLUS
DOCUMENT NUMBER: 127:16185
TITLE: Increased oxysterol contents in diabetic rat hearts: their involvement in diabetic cardiomyopathy
AUTHOR(S): Matsui, Hideo; Okumura, Kenji; Mukawa, Hiroaki; Hibino, Michitaka; Toki, Yukio; Ito, Takayuki
CORPORATE SOURCE: The Second Department of Internal Medicine, Nagoya University School of Medicine, Nagoya, 466, Japan
SOURCE: Can. J. Cardiol. (1997), 13(4), 373-379
CODEN: CJCAEX; ISSN: 0828-282X
PUBLISHER: Pulsus Group

DOCUMENT TYPE: Journal
LANGUAGE: English
AB Abnormal lipid metab. assocd. with diabetes mellitus has been proposed to be involved in the pathogenesis of diabetic cardiomyopathy. Oxysterols, oxidn. derivs. of cholesterol, are known to be highly cytotoxic. Changes in myocardial oxysterols and to assess the effect of probucol, a lipid lowering agent, on myocardial lipids and oxysterols were monitored in diabetic rats. Streptozotocin-induced diabetic rats were divided into two groups; one group was put on a std. diet, and the other a diet contg. 1% (wt./wt.) probucol for eight weeks. Two oxysterols, 7.beta.-hydroxycholesterol and 7-ketocholesterol, were identified in myocardium by capillary gas chromatog. Both 7.beta.-hydroxycholesterol and 7-ketocholesterol were increased in diabetic rats (49.9 ng/mg dry wt. vs. 5.8 in controls and 5.3 ng/mg dry wt. vs. 1.7 in controls, resp.). Probucol reduced not only plasma lipids but also myocardial lipids except for cholesterol and sphingomyelin fractions. However, probucol did not improve insulin deficiency, glucose metab. or myocardial oxysterol contents. This study demonstrated an increase in oxysterols in the myocardium of diabetic rats, suggesting that oxysterols may play a role in the development of diabetic cardiomyopathy. Probucol did not decrease the myocardial oxysterol content at the dose used in this study, suggesting that the increase in oxysterols may not be attributed to high circulating concns. of lipids, but rather to disturbed myocardial metab. due to insulin deficiency.
IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 57-88-5, Cholesterol, biological studies 57-88-5D, Cholesterol, esters 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 112-85-6, Docosanoic acid 112-86-7 373-49-9 463-40-1 506-17-2 506-30-9, Eicosanoic acid 506-32-1 506-37-6 544-63-8, Tetradecanoic acid, biological studies 557-59-5, Tetracosanoic acid 566-27-8, 7.beta.-Hydroxycholesterol 566-28-9, 7-Ketocholesterol 1783-84-2 5561-99-9 6217-54-5 32839-28-4
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(increased oxysterols in the myocardium of **diabetic** rats did not decrease in response to probucol indicating that the increase is probably due to insulin deficiency)

L11 ANSWER 4 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1997:198852 CAPLUS
DOCUMENT NUMBER: 126:291869
TITLE: Non-insulin dependent diabetes mellitus in Psammomys obesus is independent of changes in tissue fatty acid composition
AUTHOR(S): Collier, G. R.; Collier, F. McL.; Sanigorski, A.; Walder, K.; Cameron-Smith, D.; Sinclair, A. J.
CORPORATE SOURCE: School Nutrition Public Health, Deakin University, Geelong, 3217, Australia
SOURCE: Lipids (1997), 32(3), 317-322
CODEN: LPDSAP; ISSN: 0024-4201
PUBLISHER: AOCS Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Recently it has been postulated that membrane fatty acid compn. may be

involved in the pathogenesis of insulin resistance and non-insulin dependent diabetes mellitus (NIDDM). The aim of this study was to det. whether alterations in tissue phospholipid (PL) fatty acids are present in hyperglycemic and hyperinsulinemic Psammomys obesus. On a native diet of salt bush, P. obesus (Israeli sand rat) remains lean and free of diabetes; however, when placed on a normal lab. chow, a significant proportion of these animals develops a no. of metabolic disorders assocd. with NIDDM, providing an ideal animal model of obesity and NIDDM. Four groups of mature P. obesus were studied: group A: normoglycemic and normoinsulinemic; group B: normoglycemic and hyperinsulinemic; group C: hyperglycemic and hyperinsulinemic; and group D: hyperglycemic and hypoinsulinemic. In liver and red gastrocnemius muscle, there were no significant differences between groups A, B, and C in fatty acid compn. of PL. Minor differences in individual fatty acids were demonstrated in group D animals (increased liver 20:4n-6 and increased muscle 22:5n-3); however, the unsatn. indexes in liver and muscle were not different between any of the groups. In considering that the minor changes in group D animals were not demonstrated in hyperinsulinemic group B animals or hyperglycemic, hyperinsulinemic group C animals, it is likely that the differences in group D animals were secondary to the more severe disturbances in glucose homeostasis and hypoinsulinemia present in these animals. Apparently, in this rodent diabetic model, significant disturbances in glucose homeostasis and hyperinsulinemia develop independently of changes in tissue fatty acid compn.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 373-49-9 1783-84-2 6217-54-5 24880-45-3 25182-74-5 27104-13-8 28874-58-0
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(in Psammomys obesus, a rodent model of non-insulin dependent **diabetes** mellitus and obesity, disturbances in glucose homeostasis and hyperinsulinemia develop independently of changes in tissue phospholipid fatty acid compn.)

L11 ANSWER 5 OF 35 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1997:40229 CAPLUS
DOCUMENT NUMBER: 126:142803
TITLE: Lipid abnormalities of erythrocyte membranes in diabetic patients. Analysis of lipid peroxide in erythrocyte membranes and antioxidant effect of nilvadipine on lipid peroxidation
AUTHOR(S): Inouye, Masayuki; Hashimoto, Hidetoshi
CORPORATE SOURCE: Dep. Internal Medicine, Hyogo Rehabilitation Center Hospital, Japan
SOURCE: Tonyobyo (Tokyo) (1996), 39(10), 789-796
CODEN: TONYA4; ISSN: 0021-437X
PUBLISHER: Nippon Tonyobyo Gakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB Significantly elevated levels of 7-keto cholestadiene (KD) and significantly reduced levels of poly-unsatd. fatty acids (linoleic acid, arachidonic acid, and docosahexaenoic acid) were found in the lipid fractions of diabetic erythrocyte membranes when compared with controls. Apparently, there is significant oxidative stress in diabetes. In particular, the levels of KD were correlated to the values of HbA1C. Cholesta-3,5-diene (Die) peroxidn. stimulated by UV-B irradn.-generated

free radicals produced KD. The inhibitory effect of a Ca antagonist, nilvadipine, on Die peroxidn. by UV-B irradn. was studied. Nilvadipine inhibited the peroxidn. of Die to KD and was considered to be an antioxidant of lipid peroxidn. Nilvadipine is thought to be useful in the treatment of diabetes with hypertension.

IT 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 506-32-1, Arachidonic acid 567-72-6, Cholesta-3,5-dien-7-one 32839-18-2, Docosahexaenoic acid
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(lipid abnormalities of erythrocyte membranes in **diabetic** humans and the antioxidant effect of nilvadipine on lipid peroxidn.)

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| FULL ESTIMATED COST | 54.01 | 117.56 |
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| CA SUBSCRIBER PRICE | -3.53 | -3.53 |

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FILE 'REGISTRY' ENTERED AT 14:46:52 ON 08 JUN 2001
L1 1 S "9,11-OCTADECADIENOIC ACID"/CN
L2 4 S CONJUGATED LINOLEIC ACID
L3 331 S "9,11-OCTADECADIENOIC ACID"
L4 1 S "10,12-OCTADECADIENOIC ACID"/CN

FILE 'CAPLUS' ENTERED AT 14:50:10 ON 08 JUN 2001
L5 7239 S L1 OR L2 OR L4 OR "CONJUGATED LINOLEIC ACID" OR OCTADECADIENO
L6 107 S L5 AND DIABET?
L7 77 S L5 (S) DIABET?

L8 1 S L5 (A) DIABET?

FILE 'STNGUIDE' ENTERED AT 14:52:40 ON 08 JUN 2001

FILE 'CAPLUS' ENTERED AT 14:53:54 ON 08 JUN 2001
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L10 35 S L9 RAN=(,1997)
L11 35 FOCUS L10 1-

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L11 ANSWER 6 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1996:593403 CAPLUS
DOCUMENT NUMBER: 125:230863
TITLE: Fat emulsions containing oils with controlled ratio of linolic acid and .alpha.-linolenic acid for diabetic patients
INVENTOR(S): Ikeda, Akira; Inui, Kenichi; Kuniba, Yukifumi
PATENT ASSIGNEE(S): Morishita Pharma, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 08198749 | A2 | 19960806 | JP 1995-31561 | 19950127 |

AB The fat emulsions for transfusion contain oils with wt. ratio of .alpha.-linolenic acid (I) to linolic acid (II) 2.5-7.0 as active ingredients. The emulsions may contain 5-30 wt.% oils at least contg. purified Perilla oil. The fat emulsions for i.v. injection improve abnormal fatty acid metab. in diabetes to suppress eicosanoid formation, and normalize nutritional status and prevent diabetic complications. I.v. injection of a fat emulsion contg. Perilla oil (I/II ratio 4.6), yolk lecithin, and glycerin to streptozotocin-induced diabetic rats significantly increased N balance and suppressed prodn. of arachidonic acid and TXA2.

IT 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 463-40-1, .alpha.-Linolenic acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fat emulsions contg. oils with controlled ratio of linolic acid and .alpha.-linolenic acid for **diabetic** patients)

L11 ANSWER 7 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1996:253257 CAPLUS
DOCUMENT NUMBER: 125:4712
TITLE: Thin-layer chromatography and high-performance liquid chromatography for the assay of fatty acid compositions of individual phospholipids in platelets from non-insulin-dependent diabetes mellitus patients: effect of eicosapentaenoic acid ethyl ester administration
AUTHOR(S): Miwa, Hiroshi; Yamamoto, Magobei; Futata, Tetsuhiro; Kan, Koutarou; Asano, Takashi
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Fukuoka

University, Fukuoka, 814-80, Japan
SOURCE: J. Chromatogr., B: Biomed. Appl. (1996), 677(2), 217-23
CODEN: JCBBEP; ISSN: 0378-4347
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Eight major phospholipids were sepd. by a TLC method with a 1-dimensional developing system without any pretreatment of the plate, and the fatty acids incorporated into each phospholipid class were analyzed by an improved HPLC method with a simple elution system that has advantages with respect to resoln. and anal. time. The fatty acid compns. of individual phospholipids in platelets were investigated following administration of Et cis-5,8,11,14,17-eicosapentaenoate for >13 wk to patients with non-insulin-dependent diabetes mellitus. The cis-5,8,11,14,17-eicosapentaenoic acid compns. of all phospholipid classes were significantly increased with decreasing platelet aggregation rates after the administration. The results suggested that the present method provides the complete sepn. of individual phospholipids in sufficient amts. to allow fatty acid anal. on the isolated phospholipid moieties.
IT 57-10-3, Hexadecanoic acid, analysis 57-11-4, Octadecanoic acid, analysis 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, analysis 112-80-1, 9-Octadecenoic acid (Z)-, analysis 506-30-9, Eicosanoic acid 506-32-1 544-63-8, Tetradecanoic acid, analysis 5561-99-9 5598-38-9 6217-54-5 10417-94-4 28874-58-0 76261-96-6
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(fatty acids detn. in phospholipids of platelets by TLC and HPLC in **diabetes** mellitus and Et eicosapentaenoate administration)

L11 ANSWER 8 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1994:480064 CAPLUS
DOCUMENT NUMBER: 121:80064
TITLE: A consecutive study on fatty acid metabolism in liver and kidney and heart and brain in streptozotocin (STZ)-induced diabetic rats
AUTHOR(S): Hu, Qizhi
CORPORATE SOURCE: Jiangsu Sanit. Antiepidemic Stn., Nanjing, 210009, Peop. Rep. China
SOURCE: Jiangsu Yiyao (1994), 20(1), 5-7
CODEN: CIYADX; ISSN: 0253-3685
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Diabetes exerts profound impacts on phospholipid metab. This report presents the results of a consecutive study, from 4 days to 2 mo after the injection of STZ, on the variations of fatty acid compn. in phosphocholine and phosphoethanolamine in visceral organs (liver, kidney, heart, and brain). In STZ induced diabetic rats, the variation pattern of PUFA, i.e. increase in levels of (n-6) fatty acids (C18:2, C20:3) and (n-3)C22:6, and decrease in level of (n-6)C20:4 is basically the same. The changes begin from liver, and then heart and kidney, brain lags the last.
IT 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, analysis 1783-84-2 6217-54-5
RL: ANST (Analytical study)
(detn. of increased content of, in phsophatidylethanolamine and phosphatidylcholine of **diabetic** liver and kidney and heart and brain)

L11 ANSWER 9 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1994:208185 CAPLUS
DOCUMENT NUMBER: 120:208185
TITLE: Effects of brazilin on lipid and phosphatidyl fatty acid composition of erythrocyte membrane in streptozotocin-induced diabetic rats
AUTHOR(S): Moon, Chang Kiu; Yoon, Eun Yi; Lee, Soo Hwan; Moon, Chang Hyun; Hwang, Daniel H.
CORPORATE SOURCE: Coll. Pharm., Seoul Natl. Univ., Seoul, 151-742, S. Korea
SOURCE: Arch. Pharmacal Res. (1993), 16(2), 147-51
CODEN: APHRDQ; ISSN: 0253-6269
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In diabetes, the abnormal increase of the membrane cholesterol/phospholipid ratio (C/PL) is considered to be the main reason for the decreased membrane fluidity, which then results in impaired erythrocyte deformability and subsequent microcirculatory disturbances. In this study, the authors examd. the effects of brazilin on lipid and phosphatidyl fatty acid compn. of erythrocyte membranes in streptozotocin induced diabetic rats. Treatment of brazilin (10 mg/kg or 100 mg/kg for 2 wk, i.p) altered phospholipid and cholesterol contents in diabetic erythrocyte membranes. The C/PL ratio of brazilin treated groups decreased compared with that of diabetic control group while no change was obsd. in normal erythrocytes. In streptozotocin induced diabetic rats, alterations in phosphatidyl fatty acid compn. of erythrocyte membranes were obsd. and brazilin could reverse these alterations. Arachidonic acid level returned to a normal level while linoleic acid level remained unchanged by the treatment of brazilin. The results suggest that brazilin might increase erythrocyte membrane fluidity which plays a key role in regulating erythrocyte deformability, thereby it could exert pos. effects on microcirculatory disturbances.
IT 57-10-3, 16:0, biological studies 57-11-4, 18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-79-8 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 506-32-1 5561-99-9 10417-94-4, 20:5n-3 24880-40-8, 20:4n-3 128305-30-6
RL: BIOL (Biological study)
(of phospholipids, of erythrocyte membranes, brazilin effect on, in **diabetes**)

L11 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1994:103852 CAPLUS
DOCUMENT NUMBER: 120:103852
TITLE: Cell membrane fatty acid composition in Type 1 (insulin-dependent) diabetic patients: Relationship with sodium transport abnormalities and metabolic control
AUTHOR(S): Ruiz-Gutierrez, V.; Stiefel, P.; Villar, J.; Garcia-Donas, M.A.; Acosta, D.; Carneado, J.
CORPORATE SOURCE: Inst. Grasa Deriv., CSIC, Seville, Spain
SOURCE: Diabetologia (1993), 36(9), 850-856
CODEN: DBTGAJ; ISSN: 0012-186X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors have studied the fatty acid compn. of erythrocyte membrane

phospholipids in nine Type 1 (insulin dependent) diabetic patients and nine healthy control subjects. Cell membranes from the diabetic patients showed a marked decrease in the total amt. of polyunsatd. fatty acids (19.0% vs 24.6% $p < 0.0001$) mainly at the expense of docosahexaenoic acid C22:6(n3) and arachidonic acid C20:4 n6. Conversely, the total amt. of satd. fatty acids was significantly increased and the polyunsatd./satd. ratio was decreased in the Type 1 diabetic patients. Neither the time from diagnosis, nor C-peptide levels, correlated with parameters indicating a poor metabolic control of Type 1 diabetes. However, C22:6(n-3) and total n-3 content significantly correlated with HbA1c ($r = -0.79$ and $r = -0.88$, resp., $p < 0.01$), fructosamine ($r = -0.71$ and $r = -0.74$, resp., $p < 0.05$), and Na+-K+ ATPase activity (maximal rate/Km quotient) ($r = 0.78$ and $r = 0.71$, resp., $p < 0.05$). In conclusion the authors have found marked alterations of cell membrane lipid compn. in Type 1 diabetic patients. These cell membrane abnormalities in lipid content were related to sodium transport systems and to poor metabolic control. Either diet, or the diabetic state, might be responsible for the obsd. cell membrane abnormalities. A dietary intervention study might differentiate the role of diet and diabetes in the reported cell membrane alterations.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 112-85-6, Docosanoic acid 373-49-9 506-17-2 506-30-9, Eicosanoic acid 506-32-1 557-59-5, Tetracosanoic acid 1783-84-2, C20:3(n6) 2416-19-5 5561-99-9 5598-38-9 6217-54-5 17046-59-2 24880-45-3 25182-74-5 27251-59-8 28874-58-0
RL: BIOL (Biological study)
(of cell membranes from humans in **diabetes** mellitus, sodium transport abnormalities and metabolic control in relation to)

L11 ANSWER 11 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1993:252519 CAPLUS
DOCUMENT NUMBER: 118:252519
TITLE: Characteristics and specificity of the inhibition of liver glucose-6-phosphatase by arachidonic acid. Lesser inhibitability of the enzyme of diabetic rats
AUTHOR(S): Mithieux, Gilles; Bordeto, Jean Claude; Minassian, Carol; Ajzannay, Ahmed; Mercier, Isabelle; Riou, Jean Paul
CORPORATE SOURCE: Fac. Med. A. Carrel, Lyon, F-69372, Fr.
SOURCE: Eur. J. Biochem. (1993), 213(1), 461-6
CODEN: EJBCAI; ISSN: 0014-2956
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effect of arachidonic acid (.DELTA.4Ach) on liver glucose-6-phosphatase (Glc6Pase) has been studied in vitro using untreated and detergent-treated microsomes prepd. from fed and 48-h-fasted normal rats and from streptozotocin-induced diabetic rats. Glc6Pase of both untreated and detergent-treated microsomes (60 .mu.g protein/mL) is inhibited by .DELTA.4Ach in a dose-dependent manner between 10-100 .mu.M. The inhibition is very rapid and does not depend on preincubation of microsomes in the presence of .DELTA.4Ach. It does depend on the concn. of microsomal membranes and on the concn. of glucose 6-phosphate: it is more pronounced at low Glc6P concns. than at high. As a consequence, the enzyme displays sigmoidal kinetics in the presence of .DELTA.4Ach. Hill coeffs. (equal to 1 in the control expts.) of about 1.4 were detd. in the presence of 50 .mu.M .DELTA.4Ach, indicating a clear pos. cooperative dependency of the Glc6Pase upon its substrate in the presence of

.DELTA.4Ach. The .DELTA.4Ach inhibition is fully reversible in the presence of bovine serum albumin. The inhibition does not depend on the metab. of .DELTA.4Ach through the prostaglandin synthase (cyclooxygenase) or arachidonate 12-lipoxygenase pathways since it is not affected by indomethacin and nordihydroguaiaretic acid. Several other unsatd. fatty acids are able to inhibit the enzyme within the same concn. range. In contrast, satd. fatty acids, the arachidonic acid Me ester and numerous other lipid compds. contg. esterified unsatd. fatty acids do not inhibit Glc6Pase within the same concn. range. The enzyme of fed rats was inhibited in the same manner as the enzyme of 48-h-fasted rats. However, Glc6Pase of untreated microsomes from diabetic rats was less inhibitable by .DELTA.4Ach than the Glc6Pase of normal rats. This difference does not persist after solubilization of the membrane lipids by detergent treatment.

IT 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 463-40-1 506-32-1 1783-84-2 6217-54-5 10417-94-4 28874-58-0
RL: BIOL (Biological study)
(glucose phosphatase inhibition by, in liver microsomes, in **diabetes** mellitus)

L11 ANSWER 12 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1993:189143 CAPLUS
DOCUMENT NUMBER: 118:189143
TITLE: Biophysical and biochemical alterations of renal cortical membranes in diabetic rat
AUTHOR(S): Ramsammy, Leslie S.; Boos, Charles; Josepovitz, Christine; Kaloyanides, George J.
CORPORATE SOURCE: Div. Nephrol. and Hypertens., Dep. Med., State Univ. New York at Stony Brook, Stony Brook, NY, USA
SOURCE: Biochim. Biophys. Acta (1993), 1146(1), 1-8
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The objective of this study was to det. whether streptozotocin-induced diabetes mellitus in the rat causes alterations in the lipid compn. and fluidity of renal brush border membranes (BBM) and basolateral membranes (BLM). Compared to membranes of non-diabetic rats, BBM and BLM of diabetic rats contained 31% and 26%, resp., less arachidonic acid and 36% and 46%, resp., more linoleic acid esterified in phospholipids. These changes were accompanied by a decrease in the av. no. of double bonds per mol of fatty acid, a measure of fatty acid unsatn. In diabetic rats BLM had a higher total phospholipid/protein ratio (567 vs. 482 nmol/mg protein), less cholesterol (369 vs. 512 nmol/mg protein), more phosphatidylcholine (+72%) and less sphingomyelin (-22%) than did BBM. These differences were identical to those obsd. between BLM and BBM of non-diabetic rats. In control rats BLM was more fluid than BBM as assessed by the steady state fluorescence anisotropy of diphenylhexatriene and by glycerol permeability. In diabetic rats the fluidity of BLM was not different from that of BBM as assessed by the steady state fluorescence anisotropy of diphenylhexatriene whereas BLM was slightly more fluid than BBM as assessed by glycerol permeability. By both measures BLM and BBM from diabetic rats were less fluid than BLM and BBM from control rats. Removal of proteins and cholesterol in sequence was accompanied by an increase in membrane fluidity in both groups. However, in no instance did the removal of proteins or cholesterol abolish the difference between the fluidity of diabetic membranes and that of control membranes. These results suggest that the redn. in fluidity of renal BLM and BBM in the diabetic rat is due to the change in the compn. of fatty

acids esterified in membrane phospholipids.
IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, Oleic acid, biological studies 112-85-6, Docosanoic acid 373-49-9 463-40-1, Linolenic acid 506-32-1, Arachidonic acid 32839-18-2, Docosahexaenoic acid 32839-34-2, Docosapentaenoic acid
RL: BIOL (Biological study)
(of phospholipids, of brush border and basolateral membranes of kidney cortex, in **diabetes** mellitus, membrane fluidity in relation to)

L11 ANSWER 13 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:509289 CAPLUS
DOCUMENT NUMBER: 117:109289
TITLE: Nonesterified fatty acids in normal and diabetic rat sciatic nerve
AUTHOR(S): Chattopadhyay, Jyotiprakas; Thompson, Ed W.; Schmid, Harald H. O.
CORPORATE SOURCE: Hormel Inst., Univ. Minnesota, Austin, MN, 55912, USA
SOURCE: Lipids (1992), 27(7), 513-17
CODEN: LPDSAP; ISSN: 0024-4201
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Alloxan-induced diabetes mellitus in rats results in elevated levels of nonesterified fatty acids (NEFA) in whole sciatic nerve and its endoneurium. Increases in NEFA levels are more pronounced in whole diabetic nerve (40% over control) than in its endoneurial portion (20-30%). Alterations in the compn. of phospholipid fatty acids are obsd.
as well, including an increase in linoleate (18:2n-6) in endoneurial phosphatidylethanolamine and a decrease in arachidonate (20:4n-6) in both phosphatidylethanolamine and phosphatidylinositol of diabetic nerve.
IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, c18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-85-6, Docosanoic acid 373-49-9 506-30-9, Eicosanoic acid 506-32-1 557-59-5, Tetracosanoic acid 1783-84-2 6217-54-5 24880-45-3 27104-13-8 28874-58-0 28933-89-3
RL: BIOL (Biological study)
(in **diabetic** vs. normal sciatic nerve)

L11 ANSWER 14 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:126104 CAPLUS
DOCUMENT NUMBER: 116:126104
TITLE: Altered desaturase activities and fatty acid composition in liver microsomes of spontaneously diabetic Wistar BB rat
AUTHOR(S): Mimouni, Virginie; Poisson, Jean Pierre
CORPORATE SOURCE: Fac. Sci. Mirande, Univ. Bourgogne, Dijon, Fr.
SOURCE: Biochim. Biophys. Acta (1992), 1123(3), 296-302
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This study examd. the activities of .DELTA.9, .DELTA.6 and .DELTA.5 desaturases and fatty acid compn. of liver microsomes in the insulin-dependent spontaneously diabetic adult female Wistar Bio-Breeding (BB) rat. The diabetic BB rats were s.c. injected with different doses of
protamine zinc insulin in order to be killed in hyper-, normo- or hypoglycemic states. Desaturase activities, which are partially inhibited

by spontaneous diabetes during the normo- and hyperglycemic periods, were similarly affected by the various insulin treatments; .DELTA.9 desaturase activity being more depressed than the desaturase activities of either .DELTA.6 of .DELTA.5. Insulin treatment with 10 I.U./kg body wt. twice a day for 2 days were able to restore the .DELTA.9, .DELTA.6 and .DELTA.5 desaturase activities to control levels during the hypoglycemic period. The microsomal fatty acid compn. of BB rats liver was not consistent with the desaturase activities, particularly .DELTA.9 desaturase activity, during the different states of glycemia, indicating that they are not closely linked in a direct cause-effect relationship.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 463-40-1 506-26-3 506-32-1 1783-84-2 5561-99-9 6217-54-5 9014-34-0 9082-66-0, .DELTA.6 Desaturase 24880-45-3 25182-74-5 28874-58-0 51901-23-6, .DELTA.5 Desaturase
RL: BIOL (Biological study)
(of liver microsomes, in spontaneous **diabetes** of rats)

L11 ANSWER 15 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:126079 CAPLUS
DOCUMENT NUMBER: 116:126079
TITLE: Decreased incorporation of long-chain fatty acids into erythrocyte phospholipids of STZ-D rats
AUTHOR(S): Dang, An Quoc; Faas, Fred H.; Jethmalani, Sunita M.; Carter, William J.
CORPORATE SOURCE: John L. McClellan Mem. Veterans Hosp., Little Rock, AR, 72205, USA
SOURCE: Diabetes (1991), 40(12), 1645-51
CODEN: DIAEAZ; ISSN: 0012-1797
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The mechanisms for the altered fatty acid compn. in erythrocytes (RBCs) were studied in streptozocin-induced diabetic (STZ-D) rats. After 3-wk duration of diabetes mellitus, blood glucose, plasma triglyceride, and plasma free fatty acid levels were increased. In the diabetic platelet-poor blood plasma (PPP), the most significant increases in free fatty acids were stearate, linoleate, eicosatrienoate, and docosahexaenoate. Fatty acid compn. of RBC phospholipids was also altered, with decreases in arachidonate, docosatetraenoate, and docosapentaenoate, and increases in linoleate and docosahexaenoate. Insulin treatment of the diabetic rats resulted in normalization of docosapentaenoate, arachidonate, and linoleate levels in RBC phospholipids but not of docosahexaenoate or docosatetraenoate levels. The incorporation of [5,6,8,9,11,12,14,15-3H]arachidonate into diabetic RBC phospholipids was decreased compared with the corresponding control RBC, regardless of the incubation medium used, which was the PPP derived either from the control or diabetic rats. The decreased incorporation of [5,6,8,9,11,12,14,15-3H]arachidonate into diabetic RBC phospholipids was independent of the altered lipid compn. of the PPP incubation media. The decreased incorporation was not specific for arachidonate, because the incorporation of other long-chain fatty acids such as [9,10-3H]oleate, [1-14C]palmitate, [2-14C]eicosatrienoate, and [1-14C]linoleate into RBC phospholipids was also comparably decreased. The decreased fatty acid incorporations were reversed by insulin treatment of the diabetic rat. The altered free fatty acid compn. in the diabetic blood plasma might not entirely account for the altered fatty acid compn. of diabetic RBC

phospholipids. The decreased incorporation or uptake of these fatty acids into the diabetic RBCs may contribute to these changes.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 112-85-6, Docosanoic acid 373-49-9 463-40-1 506-32-1 557-59-5, Tetracosanoic acid 1783-84-2 6217-54-5 10417-94-4 24880-45-3 25182-74-5 28874-58-0 31152-46-2
RL: BIOL (Biological study)
(of blood plasma and erythrocyte phospholipids, in **diabetes** mellitus, insulin effect on)

L11 ANSWER 16 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:103672 CAPLUS
DOCUMENT NUMBER: 116:103672
TITLE: Evidence for insulin dependent hepatic microsomal .gamma.-linolenic acid chain elongation in spontaneously diabetic Wistar BB rats
AUTHOR(S): Mimouni, Virginie; Narce, Michel; Poisson, Jean Pierre
CORPORATE SOURCE: Fac. Sci., Univ. Bourgogne, Dijon, 21004, Fr.
SOURCE: Biochim. Biophys. Acta (1992), 1133(2), 187-92
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English

AB This study investigated hepatic microsomal .gamma.-linolenoyl-CoA elongation and fatty acid compn. of liver microsomes in spontaneously diabetic Wistar BB rats. The liver microsomal .gamma.-linolenoyl-CoA elongation was decreased in diabetic Wistar BB rats during both normo- and hyperglycemic periods and restored during the hypoglycemic period following insulin treatment. These results are in agreement with previously reported data on linoleic acid .DELTA.6 and .DELTA.5 desatns. and support the non-parallel relationship between the chain elongation system and the glycemia. The fatty acid compn. of BB rat liver microsomes was only partially consistent with the .gamma.-linolenoyl-CoA elongation activity at the different periods of glycemia, probably because factors other than elongation impairments were involved in the evolution of fatty acid compn.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 463-40-1 506-26-3 506-32-1 1783-84-2 5561-99-9 6217-54-5 24880-45-3 25182-74-5 28874-58-0
RL: BIOL (Biological study)
(of liver microsomes, in **diabetes** mellitus, .gamma.-linolenoyl-CoA elongation in relation to)

L11 ANSWER 17 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:81416 CAPLUS
DOCUMENT NUMBER: 116:81416
TITLE: Synergistic and antagonistic effects on fatty acid composition in the liver mitochondria of rats by thyroidectomy and streptozotocin-administration
AUTHOR(S): Nishida, Mikio; Sasaki, Toru; Terada, Hiroshi; Kawada, Jun
CORPORATE SOURCE: Fac. Pharm. Sci., Univ. Tokushima, Tokushima, 770,

Japan
SOURCE: Res. Commun. Chem. Pathol. Pharmacol. (1991), 74(3), 317-26
CODEN: RCOCB8; ISSN: 0034-5164
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The content of individual fatty acid components in mitochondria of livers from thyroidectomized (Tx) and streptozotocin (STZ)-induced diabetic rats was measured to investigate how different hormones are interrelated to control particular fatty acids in mitochondria. Diabetes, in general, affected fatty acid contents more severely than hypothyroidism, regardless of the direction of the changes. Hypothyroidism and diabetes antagonistically affected the contents of C16 species and C18:1, which belong to a de novo synthesis (oleate series). However, the two pathol. conditions synergistically affected higher unsatd. species, e.g., C18;2, C20:3 and C20:4, which belong to a dietary-dependent synthesis (linoleate series). These results strongly indicated that each desatn. site and elongation site is affected in a preferential order by either thyroid hormone or insulin, and that hypothyroidism and diabetes have their effects differently on the process of de novo synthesis and the pathways initiated from an essential fatty acid in mitochondria.
IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 373-49-9 506-32-1 32839-18-2 32839-34-2
80558-45-8
RL: BIOL (Biological study)
(of liver mitochondria, **diabetes** and thyroidectomy effect on, insulin and thyroid hormones in relation to)

L11 ANSWER 18 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:676953 CAPLUS
DOCUMENT NUMBER: 115:276953
TITLE: Differential effects on fatty acid compositions in the liver microsomes of thyroidectomized or streptozocin induced diabetic rats
AUTHOR(S): Nishida, Mikio; Sasaki, Toru; Terada, Hiroshi; Kawada, Jun
CORPORATE SOURCE: Fac. Pharm. Sci., Univ. Tokushima, Tokushima, 770, Japan
SOURCE: Chem. Pharm. Bull. (1991), 39(9), 2382-6
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The purpose of the present study was to locate a controversial site and to make generalizations about the effects of thyroidectomy (Tx) and streptozocin (STZ) on the distribution pattern of an individual fatty acid in microsomal fractions of the animals thus treated. The results obtained were compared with the reported data. The effects of Tx on C18:1, C18:2, and all detectable C20 and C22 species harmonized well within each species; however the effects of Tx on C16 species and C18:0 varied within each species. Meanwhile, all the effects of STZ were identical within the species, but were often in opposite directions between two adjacent species; e.g. C18:0 and C18:1. These findings strongly indicate that

desatn. and elongation sites were independently affected by either Tx or STZ. The comparison suggested that controversial effects appeared in the distribution proper to species C18. Therefore, delta 9-desaturase activity in the microsomal fractions was measured, using stearoyl CoA (CoA) as substrate, resulting in some partial redn. in Tx, but complete suppression in STZ-treated animals. The total contents of phospholipid and cholesterol in the microsomes were also measured. Results showed a significant increase in microsomes within the STZ-group, but almost no change in the Tx-group, indicating that the changes in an individual fatty acid component and in the total fatty acids do not always take place in parallel.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 506-32-1 32839-18-2 32839-34-2 80558-45-8
RL: BIOL (Biological study)
(of liver microsomes, **diabetes** mellitus and hypothyroidism effects on)

L11 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:531007 CAPLUS
DOCUMENT NUMBER: 115:131007
TITLE: High-performance liquid chromatographic analysis of fatty acid compositions of platelet phospholipids as their 2-nitrophenylhydrazides
AUTHOR(S): Miwa, Hiroshi; Yamamoto, Magobei; Asano, Takashi
CORPORATE SOURCE: Fac. Pharm. Sci., Fukuoka Univ., Fukuoka, 814-01, Japan
SOURCE: J. Chromatogr. (1991), 568(1), 25-34
CODEN: JOCRAM; ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English

AB 2-Nitrophenylhydrazine-HCl was used as a precolumn labeling agent to convert the sapond. platelet phospholipids directly into corresponding fatty acid hydrazides, without a complicated isolation procedure. Isocratic sepn. was achieved within only 36 min for 25 satd. and mono- and polyunsatd. fatty acids (C8:0-C22:6), including cis and trans isomers, on a YMC-FA (C8) column. The anal. results showed good quant. accuracy. Fatty acid compns. were detd. in platelet phospholipids obtained from normal subjects and patients with diabetes mellitus. The method is simple, rapid, and adequate for labeling esterified fatty acids in biol. materials and has several advantages with regard to resoln., anal. time, and sensitivity over previously published methods.

IT 57-10-3, Hexadecanoic acid, analysis 57-11-4, Octadecanoic acid, analysis 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, analysis 112-79-8, trans-9-Octadecenoic acid 112-80-1, cis-9-Octadecenoic acid, analysis 112-86-7 124-07-2, Octanoic acid, analysis 143-07-7, Dodecanoic acid, analysis 334-48-5, Decanoic acid 373-49-9, cis-9-Hexadecenoic acid 463-40-1 506-12-7, Heptadecanoic acid 506-21-8 506-30-9, Eicosanoic acid 506-32-1 544-63-8, Tetradecanoic acid, analysis 544-64-9, cis-9-Tetradecenoic acid 1783-84-2, cis-8,11,14-Eicosatrienoic acid 5561-99-9 5598-38-9 6217-54-5 10417-94-4 17735-98-7 28845-86-5 28874-58-0
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in phospholipids of human blood platelets in health and **diabetes** mellitus by HPLC)

L11 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1991:512023 CAPLUS
DOCUMENT NUMBER: 115:112023
TITLE: Liver fatty acid composition in the spontaneously diabetic BB rat
AUTHOR(S): Mimouni, V.; Poisson, J. P.
CORPORATE SOURCE: Fac. Sci. Mirande, Univ. Bourgogne, Dijon, 21004, Fr.
SOURCE: Arch. Int. Physiol., Biochim. Biophys. (1991), 99(1), 111-21
CODEN: AIPBE4
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The purpose of the present expt. was to investigate if the modulation by insulin of liver microsomal desaturase activities in the spontaneously diabetic adult male Bio-Breeding (BB) rat, with destructive insulitis resembling the lesions described in the human type I (insulin-dependent) diabetes, corresponds to modifications in fatty acid compn., reflect of changes in fatty acid desatn. No significant differences were obsd. between BB rats, during the hyper-(48 h), the normo-(17 h), and the hypoglycemic (3 h) periods which followed the insulin injection and control rats for the fatty acid compn. of liver total lipids, phosphatidylethanolamines, phosphatidylcholines, triacylglycerols, cholesterol esters, and non-esterified fatty acids. However, linoleic acid of BB rat liver phospholipids increased, comparatively to control rats, whereas arachidonic acid decreased, in agreement with previously reported results on chem. diabetes and consistent with a defective .DELTA.6 desatn., particularly during the normo-and hyperglycemic periods, and the fact that control of membrane lipid compn. is multifactorial.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 463-40-1 506-26-3 506-32-1 1783-84-2, C20:3 n-6 5561-99-9 6217-54-5 24880-45-3 25182-74-5 28874-58-0
RL: BIOL (Biological study)
(of liver, in juvenile **diabetes** mellitus, glycemic changes effect on, .DELTA.6 desatn. in relation to)

L11 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:178188 CAPLUS
DOCUMENT NUMBER: 114:178188
TITLE: Effects of PP-56 and vitamin E on platelet hyperaggregability, fatty acid abnormalities, and clinical manifestations in streptozocin-induced diabetic rats
AUTHOR(S): Ruf, Jean C.; Ciavatti, Maryvonne; Gustafsson, Torgny; Renaud, Serge
CORPORATE SOURCE: Natl. Inst. Health Med. Res., Bron, 69675, Fr.
SOURCE: Diabetes (1991), 40(2), 233-9
CODEN: DIAEAZ; ISSN: 0012-1797
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effects of vitamin E and D-myo-inositol-1,2,6-trisphosphate (PP-56) were investigated in long-term studies in streptozocin-induced diabetic rats fed a purified diet with 33% lipids and a polyunsatd./satd. fatty acid ratio of 1. A supplement of vitamin E decreased blood plasma triglycerides, blood platelet lipid biosynthesis, some of the .DELTA.6- and .DELTA.5-desaturase abnormalities, and urine ketone bodies, but did not affect the response of platelets to aggregation. PP-56 completely normalized the platelet reactivity to ADP and thrombin. This was

accompanied by normalization of platelet lipid biosynthesis and diabetes-induced abnormalities in .DELTA.6- and .DELTA.5-desaturases. PP-56 treatment also reduced the mortality rate and to a certain extent urinary ketone bodies. The protective effect of PP-56 on platelet aggregation and mortality rate were dose-related. PP-56, a mol. derived from phytic acid, seems to exert potent protective effects on some of the manifestations assocd. with diabetes mellitus in rats.

IT 57-11-4, Octadecanoic acid, biological studies 57-88-5, Cholesterol, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 463-40-1 506-26-3 506-32-1 1783-84-2
5598-38-9 6217-54-5 10417-94-4 24880-45-3 28874-58-0
RL: BIOL (Biological study)
(of blood plasma and platelets, vitamin E and inositol trisphosphate effects on, in **diabetes** mellitus)

L11 ANSWER 22 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:40297 CAPLUS
DOCUMENT NUMBER: 114:40297
TITLE: Fatty acid spectrum of platelet phospholipids in experimental diabetes mellitus complicated by proteinuria
AUTHOR(S): Bondar, V. I.; Avakyan, T. Yu.; Zadkova, G. F.; Markov, Kh. M.
CORPORATE SOURCE: NII Pediatr., Moscow, USSR
SOURCE: Probl. Endokrinol. (1990), 36(3), 76-81
CODEN: PROEAS; ISSN: 0375-9660
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Expts. on test and control Wistar-Kyoto rats have shown that streptozocin diabetes mellitus complicated by proteinuria is characterized by the following changes of the fatty acid spectrum of platelet phospholipids: a decrease in the content of C18:2n6, C18:3n3, C20:4n6, C20:3n9, and C20:5n3, a decrease in total fatty acids of the linoleic group and the ratio of unsatd./satd. fatty acids, and an increase in the content of C18:0, C20:2n6 and C20:3n6. These changes were accompanied by an increase in the platelet aggregation ability, an increase in their synthesis of thromboxane A2 and a decrease in the synthesis of prostacyclin I2 by vascular endothelium and account for them, to a certain degree. The results are promising with relation to achieving a pos. effect with diets rich in linoleic acid for prophylaxis of vascular complications in diabetes mellitus.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 463-40-1 506-12-7, Heptadecanoic acid 506-30-9, Eicosanoic acid 506-32-1 506-37-6 544-63-8, Tetradecanoic acid, biological studies 557-59-5, Tetracosanoic acid 1783-84-2 5598-38-9 6217-54-5 10417-94-4 20590-32-3 24880-45-3 25182-74-5 28039-99-8
28874-58-0
RL: BIOL (Biological study)
(of blood platelet phospholipids, in **diabetes** mellitus with proteinuria)

L11 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:21825 CAPLUS
DOCUMENT NUMBER: 114:21825
TITLE: Spontaneous diabetes in BB rats: evidence for insulin

dependent liver microsomal .DELTA.6 and .DELTA.5 desaturase activities
AUTHOR(S): Mimouni, Virginie; Poisson, Jean Pierre
CORPORATE SOURCE: Lab. Physiol. Anim. Nutr., Fac. Sci. Mirande, Dijon, F-21004, Fr.
SOURCE: Horm. Metab. Res. (1990), 22(8), 405-7
CODEN: HMMRA2; ISSN: 0018-5043
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The activities of linoleic acid .DELTA.6 and dihomo-.gamma.-linolenic acid .DELTA.5 desatn. enzymes and fatty acid compn. were studied of liver microsomes in insulin-dependent spontaneously diabetic adult female BB rats. The desatns. were defective along the normo- and hyperglycemic period and were restored during the hypoglycemic period after insulin treatment. The fatty acid compn. of microsomes was not consistent with the desaturase activities in the different periods of glycemia, probably because other factors than desatn. disorders were involved in the evolution of fatty acid compn.
IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 463-40-1 506-26-3 506-32-1 1783-84-2 5561-99-9 6217-54-5 24880-45-3 25182-74-5 28874-58-0
RL: BIOL (Biological study)
(of liver microsomal lipids, desaturase activities effects on, in **diabetes** mellitus)

L11 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1991:4289 CAPLUS
DOCUMENT NUMBER: 114:4289
TITLE: Diabetic heart and kidney exhibit increased resistance to lipid peroxidation
AUTHOR(S): Parinandi, Narasimham L.; Thompson, Ed W.; Schmid, Harald H. O.
CORPORATE SOURCE: Hormel Inst., Univ. Minnesota, Austin, MN, 55912, USA
SOURCE: Biochim. Biophys. Acta (1990), 1047(1), 63-9
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Alloxan-diabetic rats and age-matched controls were killed after 6 wk of diabetes; heart and kidneys were removed and assayed for thiobarbituric acid-reactive substances (TBARS), lipid hydroperoxides, lipid phosphorus, total fatty acid compn. and glutathione. Tissue homogenates from a second group of diabetic and control rats were incubated in oxygen-satd. buffer with and without the free radical generating system Fe2+/ascorbate (0.1/1.0 mM) and were assayed for lipid peroxidn. Diabetic hearts contained markedly lower levels of TBARS and lipid hydroperoxides (40% and 18%, resp.) than control hearts, whereas differences in TBARS were less pronounced in kidneys (9%). Incubation of homogenates of both organs in the presence or absence of Fe2+/ascorbate for up to 2 h yielded significantly lower levels of TBARS and lipid hydroperoxides with diabetic tissue. Diabetic hearts and kidneys contained higher levels of glutathione (28% and 13% over controls) and both diabetic tissues showed much higher linoleate/arachidonate ratios than did the controls (9.86 vs. 2.56 for heart, 2.01 vs. 0.86 for kidney). It is concluded that diabetic tissues develop enhanced defense systems against oxidative stress and that

the lower levels of arachidonate contribute to their resistance to lipid peroxidn. as well.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 506-32-1 1783-84-2 6217-54-5 7723-14-0, Phosphorus, biological studies 10417-94-4 25182-74-5 27104-13-8 28039-99-8
RL: BIOL (Biological study)
(of lipids of heart and kidney, in **diabetes** mellitus, lipid peroxidn. resistance in relation to)

L11 ANSWER 25 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1990:549982 CAPLUS
DOCUMENT NUMBER: 113:149982
TITLE: The effect of chronic fatty acid treatment on lipolysis in 3T3-L1 adipocytes
AUTHOR(S): Fong, Jim C.
CORPORATE SOURCE: Inst. Biochem., Natl. Yang-Ming Med. Coll., Taipei, Taiwan
SOURCE: Biochem. Biophys. Res. Commun. (1990), 171(1), 46-52
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Satd. and unsatd. fatty acids were included in the culture medium to test their effects on lipolysis in 3T3-L1 adipocytes. Following prolonged incubation, only oleate had enhancing effects on basal and isoproterenol-stimulated lipolysis. The effect of oleate was concn.-dependent and was accompanied with increased intracellular cAMP content. The lipolytic response induced by isobutyl-methylxanthine, forskolin, or dibutyryl-cAMP was also increased in adipocytes treated with oleate. Thus, besides the increased cAMP accumulation, a step distal to cAMP prodn. may be involved in inducing enhanced lipolysis by prolonged exposure to oleate. The data may have implications for diabetes mellitus pathogenesis.

IT 57-10-3, Hexadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 463-40-1 506-32-1
RL: BIOL (Biological study)
(adipocyte lipolysis response to, cAMP levels in, **diabetes** mellitus in relation to)

L11 ANSWER 26 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1990:477031 CAPLUS
DOCUMENT NUMBER: 113:77031
TITLE: Diet fat composition alters membrane phospholipid composition, insulin binding, and glucose metabolism in adipocytes from control and diabetic animals
AUTHOR(S): Field, Catherine J.; Ryan, Edmond A.; Thomson, Alan B.; Clandinin, M. Thomas
CORPORATE SOURCE: Fac. Med., Univ. Alberta, Edmonton, AB, T6G 2C2, Can.
SOURCE: J. Biol. Chem. (1990), 265(19), 11143-50
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB It was detd. if diet fat-induced alteration in the fatty acid compn. of the adipocyte plasma membrane alters insulin binding and the insulin responsiveness of glucose metab. in control and diabetic states. Normal

(control) and diabetic (streptozotocin-induced) rats were fed high-fat semipurified diets providing a high or low polyunsatd. to satd. fatty acid (P/S) ratio. Feeding a high P/S diet increased the polyunsatd. fatty acid content of major membrane phospholipids of the adipocyte plasma membrane from both normal and diabetic animals. The diabetic state was assocd. with an elevated content of linoleic acid and a reduced level of arachidonic acid consistent with reduced .DELTA.6-desatn. Feeding the high P/S diet to diabetic animals increased membrane linoleic acid content and prevented the decrease obsd. in the arachidonic acid of membrane phospholipids. The high P/S diet was assocd. with increased insulin binding in nondiabetic animals but did not change the amt. of insulin bound by cells from diabetic animals. Increased rates of insulin-stimulated glucose transport and lipogenesis (glucose incorporation into lipids) were obsd. in control animals fed the high as compared to the low P/S diet. The rates of insulin-stimulated glucose transport, oxidn., and lipogenesis were lower for cells from diabetic as compared to control animals. However, feeding a high P/S diet improved rates for all 3 of these functions. Thus, diet-induced alterations in membrane compn. may provide a mechanism for improving the cellular response to insulin in cells from diabetic animals.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 27104-13-8 28039-99-8
RL: BIOL (Biological study)
(of phospholipids of adipocyte cell membrane, **diabetes** and dietary fats effect on)

L11 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1990:456772 CAPLUS
DOCUMENT NUMBER: 113:56772
TITLE: Elevated levels of nonesterified fatty acids in the myocardium of alloxan diabetic rats
AUTHOR(S): Chattopadhyay, Jyotiprakas; Thompson, Ed W.; Schmid, Harald H. O.
CORPORATE SOURCE: Hormel Inst., Univ. Minnesota, Austin, MN, 55912, USA
SOURCE: Lipids (1990), 25(6), 307-10
CODEN: LPDSAP; ISSN: 0024-4201
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Myocardial nonesterified fatty acids (NEFA) increase markedly within the first two days after the induction of insulin-dependent diabetes mellitus in rats by i.v. injection of alloxan. After initial variability, NEFA levels in diabetic hearts remain const. at approx. 450 nmol/g tissue (16 nmol/.mu.mol lipid P), which is about three times higher than that in control hearts. Nonesterified linoleic acid is significantly increased in diabetic heart whereas both arachidonic and docosahexaenoic acids are decreased compared to controls.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, 18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 506-32-1 6217-54-5 27104-13-8 28039-99-8
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(of heart, in **diabetes** mellitus)

L11 ANSWER 28 OF 35 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1989:631171 CAPLUS
DOCUMENT NUMBER: 111:231171
TITLE: Effects of dietary fats on fatty acid composition and .DELTA.5 desaturase in normal and diabetic rats
AUTHOR(S): Dang, A. Q.; Kemp, K.; Faas, F. H.; Carter, W. J.
CORPORATE SOURCE: John L. McClellan Mem. Veterans Hosp., Little Rock, AR, 72205, USA
SOURCE: Lipids (1989), 24(10), 882-9
CODEN: LPDSAP; ISSN: 0024-4201
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effect was studied of various diets on the phospholipid fatty acid compn. and in vitro .DELTA.5 desaturase activity of hepatic microsomes derived either from the normal or streptozotocin-induced diabetic rat. The diets studied were the std. rat chow diet and a basal fat-free diet supplemented either with 20% satd. fat, 20% unsatd. fat, or 20% menhaden oil. The phospholipid fatty acid compn. anal. revealed that the normal rat fed the satd. fat or menhaden oil diet had significantly decreased arachidonate levels, consistent with decreased .DELTA.5 desaturase activities and decreased 18:2n-6 intake. On the contrary, the unsatd. fat diet decreased dihomo-.gamma.-linolenate and increased arachidonate levels, without increased .DELTA.5 desaturase activity. Streptozotocin-induced diabetes resulted in decreased arachidonate and .DELTA.5 desaturase activity. The unsatd. fat diet fed to the diabetic rat also failed to correct this decreased .DELTA.5 desaturase activity. The unsatd. fatty acids in this diet also displaced a substantial amt. of n-3 fatty acids in both normal and diabetic microsomes, due to the competition between these 2 fatty acid families for incorporation into the membrane phospholipids. Conversely, the menhaden oil diet fed to the normal and diabetic rats displaced n-6 fatty acids, reduced .DELTA.5 desaturase activity, and enhanced 22:6n-3 incorporation into diabetic microsomes.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 373-49-9 506-32-1 1783-84-2 5598-38-9 6217-54-5 10417-94-4 20590-32-3 24880-45-3 25182-74-5 28874-58-0
RL: BIOL (Biological study)
(of phospholipids, of liver in **diabetes**, dietary fats effect on)

L11 ANSWER 29 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1989:593526 CAPLUS
DOCUMENT NUMBER: 111:193526
TITLE: Effect of eicosapentaenoic acid ethyl ester on proteinuria of streptozotocin-induced diabetes mellitus in rats
AUTHOR(S): Fujikawa, Mariko; Yamazaki, Katsuya; Sawazaki, Shigeki; Taki, Hirofumi; Kaneda, Mariko; Urakaze, Masaharu; Hamazaki, Tomohito; Yano, Saburo; Fujita, Takao
CORPORATE SOURCE: 1st Dep. Intern. Med., Toyama Med. Pharm. Univ., Toyama, 930-01, Japan
SOURCE: Lipids (1989), 24(9), 765-8
CODEN: LPDSAP; ISSN: 0024-4201
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Streptozotocin (45 mg/kg) was i.v. administered to 7-wk-old Wistar rats

through their tail veins. After 11 days, the rats were divided into 2 groups. One group was fed a lipid-free diet (90%, wt./wt.) plus lard (8%)
and safflower oil (2%) for 4 wk (Diet 1 group). The other group was fed in the same way, except that safflower oil was replaced by 90% pure eicosapentaenoic acid (EPA) Et ester (Diet 2 group). Twenty-four-hour urine was collected just before the diets started and during the expt. at 7-day intervals. In the 2nd and 3rd weeks, the levels of proteinuria were
significantly lower in the Diet 2 group than in the Diet 1 group. There was no significant difference in the levels of creatinine, urea N, or lipids in plasma or in body wts. between the 2 groups after 4 wk on the diets. Because Diet 2 reduced proteinuria of diabetic rats compared to Diet 1, an EPA-rich diet may retard the development of diabetic nephropathy.

IT 57-10-3, Hexadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 506-32-1 10417-94-4 24880-45-3
RL: BIOL (Biological study)
(of phospholipids, of kidney in **diabetes**, dietary eicopentaenoic acid Et ester effect on)

L11 ANSWER 30 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1989:593524 CAPLUS
DOCUMENT NUMBER: 111:193524
TITLE: Aspects of polyunsaturated fatty acid metabolism in normal subjects and diabetic patients. Nutritional implications
AUTHOR(S): Monnier, L.; El Boustani, S.; Crastes de Paulet, A.; Descomps, B.; Mendy, F.
CORPORATE SOURCE: Serv. Maladies Metab. Endocriniennes, CHR Montpellier, Montpellier, 34060, Fr.
SOURCE: Rev. Fr. Corps Gras (1989), 36(1), 3-10
CODEN: RFCGAE; ISSN: 0035-3000
DOCUMENT TYPE: Journal
LANGUAGE: French

AB A group of normal subjects and a group of diabetics received a dietary supply of 20 g C18:2(n-6) (sunflower oil) for 5 wk and then 20 g C18:2(n-6) plus 2 g C18:3(n-6) (oenothera oil). In both groups, the C18:2(n-6) had no effect either on plasma lipids, platelet functions, or plasma fatty acid distribution. On the other hand, the dietary supply of 2 g C18:3(n-6) was followed by a decline in plasma cholesterol, apolipoprotein B, and .beta.-thromboglobulin and an increase in plasma C20:3(n-6) and C20:4(n-6). The influence of the chem. form on the absorption of polyunsatd. fatty acids (PUFAs) was studied by comparing 4 different chem. forms of eicosapentaenoic acid (EPA) in normal subjects: the EPA Et ester ingestion was followed by a lower and slower EPA incorporation into plasma triglycerides (TG) than with the free fatty acid, the arginine salt, or a triglyceride carrying EPA in position 2 (1,3-dioctanoyl-2-eicosapentaenoylglycerol). Moreover, after a dietary supply of this TG, EPA was detected exclusively in the position 2 of plasma TG, a position favorable for the incorporation of this PUFA in a key position of the phospholipid mols. An impairment of the conversion of
C18:2(n-6) into C20:4(n-6) has been reported in exptl. diabetes and related to a deficiency of .DELTA.5 desaturase. To det. if this is the case in humans, the metabolic conversion of a 2H-labeled precursor by diabetics was compared in severe insulin deficiency and after insulin treatment. The conversion of 2H-labeled C20:3(n-6) into 2H-labeled

C20:4(n-6) was undetectable before insulin treatment but was restored to normal value after equilibration of diabetes. In conclusion, there is a specific effect of C18:3(n-6) (2 g/day) on blood cholesterol and platelet functions both in normal subjects and in diabetics; the chem. form of PUFAs is the determinant for their absorption; and .DELTA.5 desaturase is insulin dependent in humans.

IT 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 506-26-3
RL: BIOL (Biological study)
(blood platelet function and desaturase and lipids of blood plasma of human response to dietary, in **diabetes**)

L11 ANSWER 31 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1989:571892 CAPLUS
DOCUMENT NUMBER: 111:171892
TITLE: Increased eicosanoid production in streptozotocin-induced diabetic rats. A study of mesenteric vascular perfusion
AUTHOR(S): Fujii, Katsumi
CORPORATE SOURCE: Sch. Med., Juntendo Univ., Tokyo, Japan
SOURCE: Tonyobyo (Tokyo) (1989), 32(4), 279-84
CODEN: TONYA4; ISSN: 0021-437X
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB Compared to nondiabetic control rats, rats with streptozotocin-induced diabetes exhibited an increase in eicosanoid (6-keto-PGF1.alpha. and TxB2) formation by the mesenteric vascular bed. This increased prodn. was apparently assocd. with insulin deficiency and/or hyperglycemia. The fatty acid compn. of vascular phospholipids of diabetic rats are reported.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 463-40-1 506-26-3 506-32-1 1783-84-2 6217-54-5 10417-94-4 24880-45-3 25182-74-5 28874-58-0
RL: BIOL (Biological study)
(of phospholipids, of blood vessel in **diabetes** mellitus)

L11 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1989:475790 CAPLUS
DOCUMENT NUMBER: 111:75790
TITLE: Membrane lipid alterations and sodium-pumping activity in erythrocytes from IDDM and NIDDM subjects
AUTHOR(S): Baldini, Patrizia; Incerpi, Sandra; Lambert-Gardini, Stefano; Spinedi, Angelo; Luly, Paolo
CORPORATE SOURCE: Dep. Biol., Univ. Rome, Rome, Italy
SOURCE: Diabetes (1989), 38(7), 825-31
CODEN: DIAEAZ; ISSN: 0012-1797
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The Na+-pumping activity of the erythrocyte plasma membrane in diabetic subjects was studied together with the lipid compn. Insulin-dependent diabetes mellitus (IDDM) patients were divided into young (28.1 yr) and old (71.7 yr) subjects; the age of non-insulin-dependent (NIDDM) patients was 70.7 yr. The Na+-pumping activity, estd. from both Na+-K+-ATPase and ouabain binding, was decreased in IDDM and NIDDM subjects, but its insulin sensitivity was retained only in young IDDM subjects. The total cholesterol and phospholipid content of the erythrocyte plasma membrane

was lowered in IDDM subjects, and cholesterol-to-phospholipid molar ratio was decreased. In NIDDM subjects the decrease of the 2 lipid components did not alter their ratio. The anal. of major phospholipid components of erythrocyte membranes revealed that only phosphatidylcholine was increased in young diabetic subjects. The fatty acid compn. of major phospholipid classes was altered in all cases: the unsatn. index appeared to be increased in phosphatidylserine and sphingomyelin for both IDDM and NIDDM subjects and was also increased in phosphatidylcholine in the latter group.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 506-32-1 544-63-8, Tetradecanoic acid, biological studies 1783-84-2 2416-19-5 6217-54-5
RL: BIOL (Biological study)
(of phospholipids, of erythrocyte membrane in **diabetes** mellitus subtypes in humans)

L11 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1989:455151 CAPLUS
DOCUMENT NUMBER: 111:55151
TITLE: Plasma and cellular zinc levels and membrane lipid composition in streptozotocin diabetic rats
AUTHOR(S): Burke, James P.; Fenton, Marilyn R.
CORPORATE SOURCE: Dep. Physiol. Sci., Pennsylvania Coll. Pediatr. Med., Philadelphia, PA, 19107, USA
SOURCE: Comp. Biochem. Physiol., B: Comp. Biochem. (1989), 93B(2), 409-12
CODEN: CBPBB8; ISSN: 0305-0491
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Lipid and zinc analyses were conducted on liver mitochondrial and microsomal membranes and on erythrocyte ghosts from streptozotocin (STZ)-treated animals. In STZ animals, anal. of phosphatidylcholine (PC) and phosphatidylethanolamine (PE) fatty acids revealed an increase in palmitic acid and a corresponding decrease in stearic acid. Polyunsatd. fatty acids were also affected, with an increase in 18:2, a decrease in 20:4, and an increase in 22:6 acids in STZ animals as compared to controls. The change in fatty acid compn. was obsd. in all three membrane fractions. Plasma zinc levels in STZ animals were elevated while no difference was obsd. in membrane-bound zinc. Thus, while there appears to be both altered trace metal and membrane lipid metab. in STZ treated animals, membrane bound zinc is not affected.

IT 57-10-3, Palmitic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 506-32-1, Arachidonic acid 32839-18-2, Docosahexaenoic acid
RL: BIOL (Biological study)
(of liver and erythrocyte membrane phospholipids, in **diabetes** mellitus)

L11 ANSWER 34 OF 35 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1989:113555 CAPLUS
DOCUMENT NUMBER: 110:113555
TITLE: Effect of high/low dietary linoleic acid levels on the function and fatty acid composition of T-lymphocytes

of normal and diabetic rats

AUTHOR(S): Singh, B.; Lauzon, J.; Venkatraman, J.; Thomson, A. B.; Rajotte, R. V.; Clandinin, M. T.

CORPORATE SOURCE: Dep. Immunol., Univ. Alberta, Edmonton, AB, T6G 2H7, Can.

SOURCE: Diabetes Res. (1988), 8(3), 129-34
CODEN: DIREEM; ISSN: 0265-5985

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effect of dietary linoleic acid on T-cell membrane compn. and T-cell mediated immune responses was studied in normal and diabetic rats. Streptozotocin-induced diabetes produced lower T-cell proliferative responses in mixed lymphocyte reactions and upon mitogen stimulation. Feeding of a diet rich in linoleic acid did not improve these responses. Feeding a diet low in linoleic acid further lowered the T-cell-dependent immune responses. Lower levels of 18:2.omega.6 fatty acids in the membrane phospholipids were found in these T-cells. The levels of 20:4.omega.6 fatty acids were altered as a result of diabetes and diet compn. These fatty acids are the precursors of prostaglandins which are known to influence immune responses. Evidently, diabetes results in significant alterations in T-cell membrane compn. and function in a manner that can be manipulated by modifications of the fatty acid compn. of the diet. Dietary fat modification may be important in regulating T cell-mediated immunity in insulin-dependent diabetes mellitus.

IT 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies
RL: BIOL (Biological study)
(deficiency and excess of, fatty acid compn. and immune function of lymphocytes response to, in **diabetes**)

L11 ANSWER 35 OF 35 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1989:113507 CAPLUS

DOCUMENT NUMBER: 110:113507

TITLE: Fatty acid spectrum of the liver lipids of diabetic (db/db) mice with a course administration of nicotinamide and phosphopantothenate

AUTHOR(S): Obrosova, I. G.; Tsyruk, V. L.; Pavlenya, A. K.; Larin, F. S.; Efimov, A. S.; Babicheva, E. I.

CORPORATE SOURCE: Kiev. NII Endokrinol. Obmena Veshchestv, Kiev, USSR

SOURCE: Dokl. Akad. Nauk Ukr. SSR, Ser. B: Geol., Khim. Biol. Nauki (1988), (2), 73-6
CODEN: DNNADO; ISSN: 0201-8454

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The fatty acid compn. of hepatic lipids of db/db mice with noninsulin-dependent diabetes, demonstrated alterations typical of the essential fatty acid deficiency (dramatic fall of arachidonate, decrease of docosapentaenoic and docosahexaenoic acids with parallel elevation of monounsatd. acids). Nicotinamide administration to diabetic mice resulted in further aggravation of changes in the hepatic fatty acid compn. On the contrary, phosphopantothenate treatment completely abolished the functional fatty acid deficiency.

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, C18:0, biological studies 60-33-3, 9,12-**Octadecadienoic acid** (Z,Z)-, biological studies 112-80-1, 9-Octadecenoic acid (Z)-, biological studies 143-07-7, Dodecanoic acid, biological studies

373-49-9  506-32-1  544-63-8, Tetradecanoic acid, biological studies
1002-84-2, Pentadecanoic acid  28039-98-7  29255-62-7  32839-18-2
32839-34-2
RL: BIOL (Biological study)
(of liver, in **diabetes** mellitus, nicotinamide and
phosphopantothenic acid effect on)

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13 FILE CIN
60* FILE CONFSCI
2* FILE CROPB
15* FILE CROPU
26* FILE DDFB
59* FILE DDFU
80* FILE DGENE
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26* FILE DRUGB
70* FILE DRUGU
14* FILE EMBAL
555 FILE EMBASE

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         3*  FILE KOSMET
       101*  FILE LIFESCI
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       788   FILE MEDLINE
         2   FILE NIOSHTIC
         6*  FILE NTIS
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         3*  FILE OCEAN
       356*  FILE PASCAL
         0*  FILE PHIC
         2*  FILE PHIN
       108   FILE PROMT
       902*  FILE SCISEARCH
       162   FILE TOXLINE
  55 FILES SEARCHED...
       203   FILE TOXLIT
       622*  FILE USPATFULL
       137   FILE WPIDS
  58 FILES SEARCHED...
       137   FILE WPINDEX

  48 FILES HAVE ONE OR MORE ANSWERS,    59 FILES SEARCHED IN STNINDEX

L12  QUE L5

=> s l12 and diabet?
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         3   FILE AGRICOLA
         0*  FILE AQUASCI
         1   FILE BIOBUSINESS
         0*  FILE BIOCOMMERCE
        16   FILE BIOSIS
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         8*  FILE CABA
         3   FILE CANCERLIT
       107*  FILE CAPLUS
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         1   FILE CEN
         1   FILE CIN
         1*  FILE CONFSCI
         0*  FILE CROPB
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         4*  FILE DDFU
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         20*  FILE SCISEARCH
          5   FILE TOXLINE
          4   FILE TOXLIT
         23*  FILE USPATFULL
  57 FILES SEARCHED...
          6   FILE WPIDS
          6   FILE WPINDEX

  27 FILES HAVE ONE OR MORE ANSWERS,    59 FILES SEARCHED IN STNINDEX

L13  QUE L12 AND DIABET?

=> d rank
F1          107*  CAPLUS
F2           23*  USPATFULL
F3           20*  SCISEARCH
F4           16   BIOSIS
F5           16   EMBASE
F6           14   MEDLINE
F7           14   PROMT
F8           10*  ESBIOBASE
F9            8*  CABA
F10           7*  PASCAL
F11           6   WPIDS
F12           6   WPINDEX
F13           5   TOXLINE
F14           5*  DRUGU
F15           5*  FROSTI
F16           4   TOXLIT
F17           4*  DDFU
F18           3   AGRICOLA
F19           3   CANCERLIT
F20           2   BIOTECHNO
F21           2*  ADISALERTS
F22           1   BIOBUSINESS
F23           1   CEN
F24           1   CIN
F25           1   JICST-EPLUS
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F26             1*  CONFSCI
F27             1*  EMBAL

=> file f1-13
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     7.20     190.94

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                     0.00     -21.17

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FILE 'WPINDEX' ACCESS NOT AUTHORIZED

FILE 'TOXLINE' ENTERED AT 15:46:32 ON 08 JUN 2001

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'CN' IS NOT A VALID FIELD CODE
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L14        246 L13

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'CN' IS NOT A VALID FIELD CODE
  11 FILES SEARCHED...
L15          8 ("9,11-OCTADEADIENOIC" OR "10,12-OCTADECADIENOIC") AND L13

=> dup rem l15
PROCESSING COMPLETED FOR L15
L16          7 DUP REM L15 (1 DUPLICATE REMOVED)

=> d ibib abs kwic tot

L16  ANSWER 1 OF 7  USPATFULL
ACCESSION NUMBER:        2000:168188  USPATFULL
TITLE:                   Synthesis of conjugated eicosadienoic acid
INVENTOR(S):             Seidel, Michael C., 61 Hickory La., Chalfont, PA,
                         United States  18914

                              NUMBER         DATE
                         ---------------- --------
PATENT INFORMATION:      US 6160141       20001212
APPLICATION INFO.:       US 1999-283554   19990401  (9)
RELATED APPLN. INFO.:    Continuation-in-part of Ser. No. US 1997-800567, filed
                         on 18 Feb 1997, now patented, Pat. No. US 5892074
DOCUMENT TYPE:           Utility
PRIMARY EXAMINER:        Carr, Deborah D.
LEGAL REPRESENTATIVE:    Glantz, Douglas G.
NUMBER OF CLAIMS:        20
EXEMPLARY CLAIM:         1
NUMBER OF DRAWINGS:      5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT:              1055
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB     A synthesis process for producing 11-cis, 13-trans eicosadienoic acid
at
       room temperature in high yield is disclosed, including providing a
       tosylate or mesylate of a methyl lesquerolate and 11-cis, 13-trans
       eicosadienoic acid formed when the tosylate or mesylate reacts with
       diazabicyclo-undecene. In one aspect, the tosylate of the methyl
       lesquerolate is formed with tosyl chloride in a pyridine solvent. In
one
       aspect, the mesylate of the methyl lesquerolate is formed with mesyl
       chloride in acetonitrile and triethyl amine. In one aspect, the
tosylate
       or mesylate is reacted with diazabicyclo-undecene in a polar,
       non-hydroxylic solvent of acetonitrile to form the preferred isomer of
       11-cis, 13-trans eicosadienoic acid at room temperature in high yield.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM   Conjugated linoleic acid (CLA) is a
       general term used to name positional and geometric isomers of linoleic
       acid.
SUMM   . . . and tenth, twelfth and thirteenth carbons and eleventh and
       twelfth, fourteenth and fifteenth carbons, respectively. Linoleic acid
       is 9-cis, 12-cis octadecadienoic acid [9(Z),12(Z)-
       octadecadienoic acid]. The numbers are counted from
```

the carboxylic acid moiety. See Formula (1) for 9-cis, 12-cis **octadecadienoic acid** [9(Z),12(Z)-**octadecadienoic acid**]. See Formula (2) for 11-cis, 13-trans eicosadienoic acid, [11(Z),13(E)-eicosadienoic acid]. ##STR1##

SUMM **Conjugated linoleic acid** (CLA) has two conjugated double bonds between the ninth and the twelfth carbons or between the tenth and thirteenth carbons,. . . The hydrogen atoms are on the opposite side of the molecule in the case of trans. See Formula (3) for **conjugated linoleic acid** (CLA). See Formula (4) for conjugated eicosadienoic acid (CEA). ##STR2##

SUMM The free, naturally occurring **conjugated linoleic acids** (CLA) have been previously isolated from fried meats and described as anticarcinogens by Y. L Ha, N K. Grimm and. . .

SUMM The free acid forms of CLA may be prepared by isomerizing linoleic acid.

The terms "**conjugated linoleic acids**" and "CLA" as used herein are intended to include 9,11-**octadecadienoic acid**, **10,12-octadecadienoic acid**, mixtures thereof, and the non-toxic salts of the acids. The non-toxic salts of the free acids may be made by. . .

SUMM Historically, CLA was made by heating linoleic acid in the presence of a base. The term CLA (**conjugated linoleic acid**) refers to the prior art preparation involving alkali cooking of linoleic acid.

SUMM The prior art method of producing **conjugated linoleic acids** (CLA) can be seen in the following Example I using starting materials of linoleic acid or safflower oil.

SUMM Synthesis of **Conjugated Linoleic Acids** (CLA) from Linoleic Acid/Safflower Oil

SUMM . . . CLA obtained by the practice of the described prior art methods of preparation typically contains two or more of the 9,11-**octadecadienoic acids** and/or **10-12-octadecadienoic acids** and active isomers thereof. After alkali treatment, the compound may be in the free acid or salt form. The CLA. . .

SUMM Theoretically, eight (8) possible geometric isomers of 9,11 and **10,12-octadecadienoic acid** (c9,c11; c9,t11; t9,c11; t9,t11; c10,c12; c10,t12; t10,c12; and t10,t12) would form from the isomerization of c9,c12 **octadecadienoic acid**. As a result of the isomerization, only four isomers (c9,c11; c9,t11; t10,c12; and c10,c12) would be expected. Because of double. . .

SUMM The relatively higher distribution of the t,t-isomers of 9,11- or **10,12-octadecadienoic acid** apparently results from the further stabilization of c9,t11- or t10,c12-geometric isomers, which is thermodynamically preferred, during an extended processing time or long aging period. Additionally, the t,t-isomer of 9,11- or **10,12-octadecadienoic acid** predominantly formed during the isomerization of linoleic acid geometrical isomers (t9,t12-, c9,t12-, and t9,c12-**octadecadienoic acid**) may influence the final ratio of the isomers or the final CLA content in the samples.

SUMM Linoleic acid geometrical isomers also influence the distribution of minor contributors (c,c-isomers of 9,11- and 10,12-, t9,c11- and c11,t12-**octadecadienoic acids**). The 11,13-isomer might be produced as a minor product from c9,c12-**octadecadienoic**

**acid** or from its isomeric forms during processing.

SUMM **Conjugated linoleic acid** (CLA) has long been of interest to biochemists and nutritionists. A recent article in INFORM, Vol. 7, No. 2, Feb.. . .

DETD The method for providing a purified **conjugated linoleic acid** (CLA) of the present invention includes providing a purified conjugated eicosadienoic acid (CEA) formed by separating by liquid chromatography a. . .

DETD My novel synthesis produces **octadecadienoic acid** not by cooking the linoleic acid in base, but by eliminating water from a methyl lesquerolate.

DETD It is believed that the presumptive active ingredient of cis-9, trans-11 **octadecadienoic acid** is provided by 11-cis, 13-trans eicosadienoic acid.

DETD The method of the present invention provides treatment of and suppression of **diabetes** in a human through the steps of administering to a human a therapeutically effective amount of 11-cis, 13-trans eicosadienoic acid. . .

L16 ANSWER 2 OF 7 USPATFULL

ACCESSION NUMBER: 2000:161170 USPATFULL

TITLE: Silver ion chromatography of high purity **conjugated linoleic acid** (CLA)

INVENTOR(S): Seidel, Michael C., 61 Hickory La., Chalfont, PA, United States 18914

| | NUMBER | DATE |
|---|---|---|
| PATENT INFORMATION: | US 6153774 | 20001128 |
| APPLICATION INFO.: | US 1999-283504 | 19990401 (9) |

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1997-800567, filed on 18 Feb 1997, now patented, Pat. No. US 5892074

DOCUMENT TYPE: Utility

PRIMARY EXAMINER: Carr, Deborah D.

LEGAL REPRESENTATIVE: Glantz, Douglas G.

NUMBER OF CLAIMS: 20

EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)

LINE COUNT: 1042

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method for providing a purified **conjugated linoleic acid** (CLA) is disclosed. The purified **conjugated linoleic acid** (CLA) is formed by separating by liquid chromatography a 9-cis, 11-trans **octadecadienoic acid** formed by a novel synthesis of reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate or mesylate of an ester of ricinoleic acid, and reacting the tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene. Reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate or mesylate of an ester of ricinoleic acid, and reacting the tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 50%, and separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 90%. In one aspect, the liquid chromatography uses a strong acid macroreticular ion exchange resin. In one aspect, the liquid chromatography includes silver ion liquid

chromatography.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

TI Silver ion chromatography of high purity **conjugated linoleic acid** (CLA)

AB A method for providing a purified **conjugated linoleic acid** (CLA) is disclosed. The purified **conjugated linoleic acid** (CLA) is formed by separating by liquid chromatography a 9-cis, 11-trans **octadecadienoic acid** formed by a novel synthesis of reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride. . . ricinoleic acid, and reacting the tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 50%, and separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 90%. In one aspect, the liquid chromatography uses a strong acid macroreticular ion exchange resin.. .

SUMM This invention relates to a process for providing a high purity **conjugated linoleic acid** (CLA) using liquid chromatography to purify a **conjugated linoleic acid** (CLA) produced from a novel synthesis. In one aspect, this invention relates to a silver ion chromatography of a **conjugated linoleic acid** (CLA) provided by a novel synthesis of 9-cis, 11-trans **octadecadienoic acid**, also known as 9(Z),11(E)-**octadecadienoic acid**, to form a high purity **conjugated linoleic acid** (CLA).

SUMM **Conjugated linoleic acid** (CLA) is a general term used to name positional and geometric isomers of linoleic acid.

SUMM . . . double bonds between the ninth and tenth carbons and between the twelfth and thirteenth carbons. Linoleic acid is 9-cis, 12-cis **octadecadienoic acid** [9(Z),12(Z)-**octadecadienoic acid**]. The numbers are counted from the carboxylic acid moiety. See Formula (1). ##STR1##

SUMM **Conjugated linoleic acid** (CLA) has two conjugated double bonds between the ninth and the twelfth carbons or between the tenth and thirteenth carbons,. . .

SUMM The free, naturally occurring **conjugated linoleic acids** (CLA) have been previously isolated from fried meats and described as anticarcinogens by Y. L Ha, N K. Grimm and. . .

SUMM The free acid forms of CLA may be prepared by isomerizing linoleic acid.

The terms "**conjugated linoleic acids**" and "CLA" as used herein are intended to include 9,11-**octadecadienoic acid**, **10,12-octadecadienoic acid**, mixtures thereof, and the non-toxic salts of the acids. The non-toxic salts of the free acids may be made by. . .

SUMM Historically, CLA was made by heating linoleic acid in the presence of a base. The term CLA (**conjugated linoleic acid**) refers to the prior art preparation involving alkali cooking of linoleic acid.

SUMM The prior art method of producing **conjugated linoleic acids** (CLA) can be seen in the following Example I using starting materials of linoleic acid or safflower oil.

SUMM Synthesis of **Conjugated Linoleic Acids** (CLA) From Linoleic Acid/Safflower Oil

SUMM . . . CLA obtained by the practice of the described prior art methods of preparation typically contains two or more of the 9,11-**octadecadienoic acids** and/or **10-12-octadecadienoic acids** and active isomers thereof. After alkali treatment, the compound may be in the free acid or salt form. The CLA. . .

SUMM Theoretically, eight (8) possible geometric isomers of 9,11 and **10,12-octadecadienoic acid** (c9,c11; c9,t11; t9,c11; t9,t11; c10,c12; c10,t12; t10,c12; and t10,t12) would form from the isomerization of c9,c12 **octadecadienoic acid**. As a result of the isomerization, only four isomers (c9,c11; c9,t11; t10,c12; and c10,c12) would be expected. Because of double. . .

SUMM The relatively higher distribution of the t,t-isomers of 9,11- or **10,12-octadecadienoic acid** apparently results from the further stabilization of c9,t11- or t10,c12-geometric isomers, which is thermodynamically preferred, during an extended processing time or long aging period. Additionally, the t,t-isomer of 9,11- or **10,12-octadecadienoic acid** predominantly formed during the isomerization of linoleic acid geometrical isomers (t9,t12-, c9,t12-, and t9,c12-**octadecadienoic acid**) may influence the final ratio of the isomers or the final CLA content in the samples.

SUMM Linoleic acid geometrical isomers also influence the distribution of minor contributors (c,c-isomers of 9,11- and 10,12-, t9,c11- and c11,t12-**octadecadienoic acids**). The 11,13-isomer might be produced as a minor product from c9,c12-**octadecadienoic acid** or from its isomeric forms during processing.

SUMM **Conjugated linoleic acid** (CLA) has long been of interest to biochemists and nutritionists. A recent article in INFORM, Vol. 7, No. 2, Feb.. . .

SUMM It is an object of the present invention to provide a method for providing a purified **conjugated linoleic acid** (CLA).

SUMM It is an object of the present invention to provide a method for providing a purified **conjugated linoleic acid** (CLA) having a purity greater than 95%.

SUMM It is an object of the present invention to provide a method for providing a purified **conjugated linoleic acid** (CLA) produced from a novel synthesis of a 9-cis, 11-trans **octadecadienoic acid**, also known as 9(Z),11(E)-**octadecadienoic acid** isomer.

SUMM It is an object of the present invention to provide a method for providing a purified **conjugated linoleic acid** (CLA) produced from a novel synthesis including reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl. . .

SUMM The present invention includes a method for providing a purified **conjugated linoleic acid** (CLA). The purified **conjugated linoleic acid** (CLA) is formed by separating by liquid chromatography a 9-cis, 11-trans **octadecadienoic acid** formed by a novel synthesis of reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride. . . ricinoleic acid, and reacting the tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 50%, and separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity

greater than 90%.

DETD The process of the present invention provides a method for producing a high purity **conjugated linoleic acid** (CLA) provided by a novel synthesis of the **conjugated linoleic acid** (CLA). In one aspect, the process of the present invention provides a method for liquid chromatography of high purity **conjugated linoleic acid** (CLA) provided by a novel synthesis of 9-cis, 11-trans **octadecadienoic acid**, also known as 9(Z),11(E)-octa-decadienoic acid to produce a purified **conjugated linoleic acid** (CLA) not available previously.

DETD The process of the present invention provides a method for producing 99% pure 9-cis, 11-trans **octadecadienoic acid**, 9(Z), 11(E) **conjugated linoleic acid** (CLA).

DETD The process of the present invention provides a purified 9-cis, 11-trans **octadecadienoic acid** formed by a novel synthesis of reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride. . .

DETD By "liquid chromatography" of 9-cis, 11-trans **octadecadienoic acid** in the context of the process of the present invention is meant passing a solution of the acid in its. . .

DETD . . . using liquid chromatography incorporates a specified resin and provides an ability to obtain a rapid purification of the 9-cis, 11-trans **octadecadienoic acid** formed by the novel synthesis of the present invention, also known as cis-9, trans-11 CLA; c9,t11 CLA; 9(Z),11(E)-**octadecadienoic acid**; or 9(Z),11(E) CLA. The specified resin includes a strong acid macroreticular ion exchange resin. By "strong" acid is meant a. . .

DETD The novel synthesis produces **octadecadienoic acid** having 75%-79% or more of the isomer 9-cis, 11-trans **octadecadienoic acid**.

DETD The method for providing a purified **conjugated linoleic acid** (CLA) of the present invention includes providing a purified **conjugated linoleic acid** (CLA) formed by separating by liquid chromatography a 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . .

DETD . . . ricinoleic acid, and reacting the tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 50% by weight, preferably greater than 70% by weight, and the separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 90% by weight, preferably greater than 95% by weight.

DETD In one embodiment, the method for providing a purified **conjugated linoleic acid** (CLA) of the present invention includes separating by liquid chromatography to form a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than about 99%.

DETD Description: 9(Z),11(E)-**Octadecadienoic Acid**

DETD My novel synthesis produces **octadecadienoic acid** not by cooking the linoleic acid in base, but by eliminating water from an ester of ricinoleic acid.

DETD The novel synthesis as used in the method of the present invention is a novel synthesis of **conjugated linoleic acid** (CLA). In one aspect, the novel synthesis as used in the method of the present invention includes a novel synthesis of a specific form of

**conjugated linoleic acid** (CLA), a specific isomer of CLA. The specific isomer of the present invention is cis-9, trans-11 octadienoic acid.

DETD There are a number of prior use patents on cis-9, trans-11 **octadecadienoic acid**. It is believed that the presumptive active ingredient is always cis-9, trans-11 **octadecadienoic acid**, but prior work has never achieved more than 40-45% pure sample.

DETD . . . novel synthesis as used in the method of the present invention provides the first practical method for the preparation of 9(Z),11(E)-**Octadecadienoic Acid** or 9(Z),11(E)-CLA in high yield.

DETD The purified **conjugated linoleic acid** (CLA) of the present invention is useful in the treatment of carcinoma in a human through the steps of administering to a human a therapeutically effective amount of the purified 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . . acid, reacting the tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene, and purifying the synthesized 9-cis, 11-trans **octadecadienoic acid** using chromatography.

DETD The purified **conjugated linoleic acid** (CLA) of the present invention has a significant potency relative to other fatty acids in respect to an ability to. . .

DETD The method of the present invention provides treatment of and suppression of **diabetes** in a human through the steps of administering to a human a therapeutically effective amount of 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . .

DETD . . . of arthritis in a human through the steps of administering to a human a therapeutically effective amount of 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . .

DETD . . . allergic reactions in a human through the steps of administering to a human a therapeutically effective amount of 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . .

DETD . . . of inflammation in a human through the steps of administering to a human a therapeutically effective amount of 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . .

CLM What is claimed is:

1. A method for providing a purified **conjugated linoleic acid** (CLA), comprising: providing a purified **conjugated linoleic acid** (CLA) formed by separating by liquid chromatography a 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . .

2. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 1, wherein said reacting an ester of ricinoleic acid with a tosyl chloride or. . . ricinoleic acid, and reacting said tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 50%, and said separating by liquid chromatography forms a 9-cis, 11-trans

**octadecadienoic acid** having a purity greater than 90%.

3. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 1, wherein said reacting an ester of ricinoleic acid with a tosyl chloride or. . . ricinoleic acid, and reacting said tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 70%, and said separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 90%.

4. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 1, wherein said separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than about 99%.

5. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 1, wherein said liquid chromatography uses a macroreticular ion exchange resin.

6. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 1, wherein said liquid chromatography comprises silver ion liquid chromatography.

7. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 2, wherein said reacting an ester of ricinoleic acid with a tosyl chloride or. . . ricinoleic acid, and reacting said tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 50%, and said separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 95%.

8. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 3, wherein said reacting an ester of ricinoleic acid with a tosyl chloride or. . . ricinoleic acid, and reacting said tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 70%, and said separating by liquid chromatography forms a 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 95%.

9. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 5, wherein said macroreticular ion exchange resin comprises a strong acid macroreticular ion exchange. . .

10. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 6, wherein said silver ion liquid chromatography uses a macroreticular silver ion exchange resin.

. . .

11. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 10, wherein said macroreticular silver ion exchange resin comprises a strong acid macroreticular silver. . .

12. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 9, wherein said macroreticular silver ion exchange resin comprises a silver ion exchange resin. . .

13. A method for providing a purified **conjugated**

**linoleic acid** (CLA), comprising: (a) providing a 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . . acid, and reacting said tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene; and (b) providing a purified **conjugated linoleic acid** (CLA) formed by separating said 9-cis, 11-trans **octadecadienoic acid** by liquid chromatography to form a purified 9-cis, 11-trans **octadecadienoic acid**.

14. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 13, wherein said purified 9-cis, 11-trans **octadecadienoic acid** has a purity greater than 90%.

15. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 13, wherein said liquid chromatography uses a macroreticular ion exchange resin.

16. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 13, wherein said liquid chromatography comprises silver ion liquid chromatography.

17. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 15, wherein said macroreticular ion exchange resin comprises a strong acid macroreticular ion exchange. . .

18. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 16, wherein said silver ion liquid chromatography uses a macroreticular silver ion exchange resin.

. . .

19. A method for providing a purified **conjugated linoleic acid** (CLA) as set forth in claim 18, wherein said macroreticular silver ion exchange resin comprises a strong acid macroreticular silver. . .

20. A method for providing a purified **conjugated linoleic acid** (CLA), comprising: (a) providing a 9-cis, 11-trans **octadecadienoic acid** formed by reacting an ester of ricinoleic acid with a tosyl chloride or a mesyl chloride to form a tosylate. . . acid, and reacting said tosylate or mesylate of an ester of ricinoleic acid with diazabicyclo-undecene; and (b) providing a purified **conjugated linoleic acid** (CLA) formed by separating said 9-cis, 11-trans **octadecadienoic acid** by silver ion liquid chromatography using a strong acid macroreticular silver ion exchange resin exhaustively treated with silver ions in the form of silver nitrate to form a purified 9-cis, 11-trans **octadecadienoic acid** having a purity greater than 95%.

L16 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2001 ACS DUPLICATE 1

ACCESSION NUMBER: 1999:390373 CAPLUS
DOCUMENT NUMBER: 131:39744
TITLE: Methods and compositions for treating **diabetes** using **conjugated linoleic acid**
INVENTOR(S): Vanden Heuvel, John P.; Belury, Martha A.; Peck, Louise W.
PATENT ASSIGNEE(S): Purdue Research Foundation, USA; The Penn State Research Foundation
SOURCE: PCT Int. Appl., 46 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9929317 | A1 | 19990617 | WO 1998-US26469 | 19981211 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 9919119 | A1 | 19990628 | AU 1999-19119 | 19981211 |
| EP 1037624 | A1 | 20000927 | EP 1998-963884 | 19981211 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1997-69567 P 19971212
WO 1998-US26469 W 19981211

AB Methods of treating **diabetes** in an animal, and food compns. useful for treating **diabetes**, are described. In one aspect of the invention, the method includes treating the animal with a therapeutically effective amt. of **conjugated linoleic acid** (CLA), including 9,11-**octadecadienoic acid** and **10,12-octadecadienoic acid**, isomers thereof, esters thereof, salts thereof, or mixts. thereof. In another aspect of the invention, a food compn. comprising a food product having a therapeutically effective amt. of a purified CLA isomer, including cis,cis-9,11-**octadecadienoic acid**, trans,cis-**10,12-octadecadienoic acid** or a mixt. of purified cis,trans-9,11-**octadecadienoic acid** and trans,cis-9,11-**octadecadienoic acid** is described.

REFERENCE COUNT: 2
REFERENCE(S): (1) Bistrian; US 4871768 A 1989 CAPLUS
(2) Mendy; US 4407821 A 1983 CAPLUS

TI Methods and compositions for treating **diabetes** using **conjugated linoleic acid**

AB Methods of treating **diabetes** in an animal, and food compns. useful for treating **diabetes**, are described. In one aspect of the invention, the method includes treating the animal with a therapeutically effective amt. of **conjugated linoleic acid** (CLA), including 9,11-**octadecadienoic acid** and **10,12-octadecadienoic acid**, isomers thereof, esters thereof, salts thereof, or mixts. thereof. In another aspect of the invention, a food compn. comprising a food product having a therapeutically effective amt. of a purified CLA isomer, including cis,cis-9,11-**octadecadienoic acid**, trans,cis-**10,12-octadecadienoic acid** or a mixt. of purified cis,trans-9,11-**octadecadienoic acid** and trans,cis-9,11-**octadecadienoic acid** is described.

ST **conjugated linoleic acid** antidiabetic; **octadecadienoic acid** isomer antidiabetic

IT Antidiabetic agents
Drug delivery systems
Food

(**conjugated linoleic acid** for treatment of **diabetes**)

IT Fatty acids, biological studies
Glycerides, biological studies
Peroxisome proliferator-activated receptors
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(**conjugated linoleic acid** for treatment of **diabetes**)

IT Gene
(expression; **conjugated linoleic acid** for treatment of **diabetes**)

IT Drug delivery systems
(oral; **conjugated linoleic acid** for treatment of **diabetes**)

IT Drug delivery systems
(unit doses; **conjugated linoleic acid** for treatment of **diabetes**)

IT Peroxisome proliferator-activated receptors
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.alpha.; **conjugated linoleic acid** for treatment of **diabetes**)

IT Peroxisome proliferator-activated receptors
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.beta.; **conjugated linoleic acid** for treatment of **diabetes**)

IT Peroxisome proliferator-activated receptors
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.gamma.; **conjugated linoleic acid** for treatment of **diabetes**)

IT 50-99-7, D-Glucose, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(blood, tolerance; **conjugated linoleic acid** for treatment of **diabetes**)

IT 544-70-7 544-71-8, trans,trans-9,11-**Octadecadienoic acid** 872-23-1 1072-36-2, trans,trans-**10,12-Octadecadienoic acid 1839-11-8**, 9,11-**Octadecadienoic acid 1839-11-8D**, 9,11-**Octadecadienoic acid**, isomers and esters 2420-44-2 2420-56-6 2540-56-9 7307-45-1 **22880-03-1**, **10,12-Octadecadienoic acid 22880-03-1D**, **10,12-Octadecadienoic acid**, isomers and esters **121250-47-3**, **Conjugated linoleic acid**
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**conjugated linoleic acid** for treatment of **diabetes**)

IT 9004-10-8, Insulin, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(**conjugated linoleic acid** for treatment of **diabetes**)

IT 50-99-7, D-Glucose, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(tolerance; **conjugated linoleic acid** for treatment of **diabetes**)

L16 ANSWER 4 OF 7 USPATFULL
ACCESSION NUMBER: 1999:75623 USPATFULL
TITLE: Use of pyruvate and anti-cortisol compounds in a method
for enhancing physical endurance and athletic endurance

in a mammal

INVENTOR(S): Beale, Paxton K., 1801 Bush St., Suite 300, San Francisco, CA, United States 94109

| | NUMBER | DATE |
|---|---|---|
| PATENT INFORMATION: | US 5919767 | 19990706 |
| APPLICATION INFO.: | US 1998-27522 | 19980223 (9) |

RELATED APPLN. INFO.: Division of Ser. No. US 1996-686820, filed on 26 Jul 1996, now patented, Pat. No. US 5756469

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Weddington, Kevin E.
LEGAL REPRESENTATIVE: Nickey, Donald O.Standley & Gilcrest, LLP
NUMBER OF CLAIMS: 9
EXEMPLARY CLAIM: 1
LINE COUNT: 484
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention is based, in part, upon the discovery that the use of pyruvate in combination with a cortisol blocker, such as phosphatidylserine, produces a synergistic effect in increasing lean body mass or muscle tissue, decreasing fat deposition, increasing endurance and athletic performance of a mammal consuming same. The invention also relates to a method of treating the catabolic effects of diseases such as cancer and AIDS by the administration of pyruvate and a cortisol blocker.

The present invention also discloses a synergistic composition comprising pyruvate and a cortisol blocker. More specifically, the present invention relates to a composition which comprises pyruvate and/or derivatives of pyruvate and phosphatidylserine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

SUMM **Conjugated linoleic acid** (CLA) is found in cheese, lamb meat and bovine muscle tissue. Dosages of effective amounts of CLA are not practical. . .

SUMM . . . disclose and claim a method of enhancing weight gain and feed efficiency in an animal which comprises administration of a **conjugated linoleic acid**. More specifically, these patents relate to the enteral or parenteral administration of 9, 11-**octadecadienoic acid; 10,12-octadecadienoic acid** or the non-toxic salts thereof to mammals to increase the efficiency of feed conversion. These patents also claim a method. . . weight gain or anorexia in an animal caused by immune stimulation of the animal by endotoxin through the administration of **conjugated linoleic acid**, free linoleic acid, salts thereof and mixtures thereof. Even more specifically, the '066 patent discloses and claims a method for. . .

SUMM . . . useful applications in medicine. Pyruvate has been described for retarding fatty deposits in livers (U.S. Pat. No. 4,158,057); for treating **diabetes** (U.S. Pat. No. 4,874,790); for retarding weight gain (U.S. Pat. Nos. 4,812,879, 4,548,937, and 4,351,835); to increase body protein concentrations. . .

L16 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1999:563797 CAPLUS
DOCUMENT NUMBER: 131:198710
TITLE: Variations in isomer distribution in commercially

available **conjugated linoleic acid**

AUTHOR(S): Yurawecz, Martin P.; Sehat, Najibullah; Mossoba, Magdi M.; Roach, John A. G.; Kramer, John K. G.; Ku, Youh

CORPORATE SOURCE: Center Food Safety Applied Nutrition, US Food Drug Administration, Washington, DC, 20204, USA

SOURCE: Fett/Lipid (1999), 101(8), 277-282
CODEN: FELIFX; ISSN: 0931-5985

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Conjugated linoleic acid** (CLA) are reported to have anticarcinogenic and antiatherogenic properties, to repartition body fat, to build bone mass, to normalize glucose tolerance, and to reduce hyperglycemia and **diabetes**. Representative com. CLA products in capsule or liq. (aq. or oily) form were analyzed for their CLA content and isomer compn. using gas chromatog. (GC), Ag ion-high performance liq. chromatog. (Ag+-HPLC), and spectroscopic techniques. The content of CLA in the prepns. varied widely. Based on the GC-internal std. technique, total CLA varied from 20-89% by total wt. and 28-94% of total fat. One product contained no CLA. The isomer distributions were generally of two types: those with 2 major CLA positional isomers, and those with 4 major CLA positional isomers. All the CLA prepns. in capsule form contained the 4 isomer mixt., while the liq. prepns. contained from 2-4 CLA positional isomers.

REFERENCE COUNT: 32

REFERENCE(S):
(1) Chin, S; J Food Comp Anal 1992, V5, P185 CAPLUS
(2) Chin, S; J Nutr 1994, V124, P2344 CAPLUS
(3) Dugan, M; Can J Anim Sci 1997, V77, P723 CAPLUS
(4) Fogerty, A; Nutr Rep Internat 1988, V38, P937 CAPLUS
(5) Ha, Y; J Agric Food Chem 1989, V37, P75 CAPLUS

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Variations in isomer distribution in commercially available **conjugated linoleic acid**

AB **Conjugated linoleic acid** (CLA) are reported to have anticarcinogenic and antiatherogenic properties, to repartition body fat, to build bone mass, to normalize glucose tolerance, and to reduce hyperglycemia and **diabetes**. Representative com. CLA products in capsule or liq. (aq. or oily) form were analyzed for their CLA content and isomer compn. using gas chromatog. (GC), Ag ion-high performance liq. chromatog. (Ag+-HPLC), and spectroscopic techniques. The content of CLA in the prepns. varied widely. Based on the GC-internal std. technique, total CLA varied from 20-89% by total wt. and 28-94% of total fat. One product contained no CLA. The isomer distributions were generally of two types: those with 2 major CLA positional isomers, and those with 4 major CLA positional isomers. All the CLA prepns. in capsule form contained the 4 isomer mixt., while the liq. prepns. contained from 2-4 CLA positional isomers.

ST **conjugated linoleic acid** com product isomer distribution detn

IT Food analysis
(variations in isomer distribution in com. available **conjugated linoleic acid**)

IT Lipids, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(variations in isomer distribution in com. available **conjugated linoleic acid**)
IT Gas chromatography
HPLC
(variations in isomer distribution in com. available **conjugated linoleic acid** detd. by)
IT 544-70-7, 9-cis,11-cis-**Octadecadienoic acid**
544-71-8, 9-trans,11-trans-**Octadecadienoic acid**
693-73-2, 11-trans,13-trans-**Octadecadienoic acid**
872-23-1, 9,11-**Octadecadienoic acid**, (9E,11Z)-
1072-36-2, 10-trans,12-trans-**Octadecadienoic acid**
2420-44-2, **10,12-Octadecadienoic acid**, (10Z,12E)- 2420-56-6, 10-trans,12-cis-**Octadecadienoic acid** 2540-56-9, 9-cis,11-trans-**Octadecadienoic acid** 7307-45-1, 10-cis,12-cis-**Octadecadienoic acid** 110731-17-4, 11-cis,13-trans-**Octadecadienoic acid** 110731-18-5, 11-Trans,13-cis-**Octadecadienoic acid** 115863-92-8, 8-trans,10-trans-**Octadecadienoic acid** 117624-52-9, 11-cis,13-cis-**Octadecadienoic acid 121250-47-3**, **Conjugated linoleic acid** 201656-39-5, 8,10-**Octadecadienoic acid**, (8Z,10E)- 205307-69-3, 8-cis,10-cis-**Octadecadienoic acid** 205307-70-6, 8-trans,10-cis-**Octadecadienoic acid**
RL: ANT (Analyte); FFD (Food or feed use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(variations in isomer distribution in com. available **conjugated linoleic acid**)

L16 ANSWER 6 OF 7 MEDLINE
ACCESSION NUMBER: 1999255435 MEDLINE
DOCUMENT NUMBER: 99255435 PubMed ID: 10320803
TITLE: Formation of 9-hydroxy linoleic acid as a product of phospholipid peroxidation in **diabetic** erythrocyte membranes.
AUTHOR: Inouye M; Mio T; Sumino K
CORPORATE SOURCE: Department of Internal Medicine, Hyogo Rehabilitation Center Hospital, Akebono-cho 1070, Nishi-ku, Kobo 651-2181, Japan.
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (1999 May 18) 1438 (2) 204-12.
Journal code: A0W; 0217513. ISSN: 0006-3002.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199906
ENTRY DATE: Entered STN: 19990628
Last Updated on STN: 19990628
Entered Medline: 19990617

AB The increased production of oxygen-derived free radicals (OFR) and lipid peroxidation may contribute to vascular complications in **diabetes**. Some lipid peroxidation products have already been reported to be formed via glucose-induced oxidative stress. We have identified 9-hydroxy linoleic acid (9-OH-C18:2) in the red cell membrane phospholipid of **diabetic** subjects. We hypothesized that 9-OH-C18:2 would be formed

in hydroxyl radical reactions to linoleic acid (C18:2) during glucose-induced oxidative stress, and confirmed that the formation of 9-OH-C18:2 was induced by ultraviolet (UV)-C irradiation to the synthetic C18:2. UV-C light generates highly reactive hydroxy radicals. C18:2 is confirmed to be the precursor of 9-OH-C18:2. To estimate the degree of oxidative damage to red cell membrane phospholipids, we developed a selective ion monitoring gas chromatography-mass spectrometric measurement for C18:2 and 9-OH-C18:2, following methanolysis of red cell membrane phospholipids. The relative peak height ratio of C18:2 to 9-OH-C18:2 (9-OH-C18:2/C18:2) was measured in phospholipid extracts of red cell membranes from healthy (n=29, 3.1+/-1.9%) and **diabetic** (n=27, 20. 9+/-16.1%) subjects. It was confirmed that 9-OH-C18:2/C18:2 is significantly (P<0.001) elevated in patients with **diabetes**. The measurement of 9-OH-C18:2/C18:2 in red cell membranes should be useful for assessing oxidative damage to membrane phospholipids in **diabetes**.

TI Formation of 9-hydroxy linoleic acid as a product of phospholipid peroxidation in **diabetic** erythrocyte membranes.

AB The increased production of oxygen-derived free radicals (OFR) and lipid peroxidation may contribute to vascular complications in **diabetes**. Some lipid peroxidation products have already been reported to be formed via glucose-induced oxidative stress. We have identified 9-hydroxy linoleic acid (9-OH-C18:2) in the red cell membrane phospholipid of **diabetic** subjects. We hypothesized that 9-OH-C18:2 would be formed in hydroxyl radical reactions to linoleic acid (C18:2) during glucose-induced oxidative stress,. . . ratio of C18:2 to 9-OH-C18:2 (9-OH-C18:2/C18:2) was measured in phospholipid extracts of red cell membranes from healthy (n=29, 3.1+/-1.9%) and **diabetic** (n=27, 20. 9+/-16.1%) subjects. It was confirmed that 9-OH-C18:2/C18:2 is significantly (P<0.001) elevated in patients with **diabetes**. The measurement of 9-OH-C18:2/C18:2 in red cell membranes should be useful for assessing oxidative damage to membrane phospholipids in **diabetes**.

CT Check Tags: Female; Human; Male
Biological Markers: BL, blood
***Diabetes Mellitus, Non-Insulin-Dependent: BL, blood**
*Erythrocyte Membrane: ME, metabolism
*Linoleic Acids: BI, biosynthesis
Lipid Peroxidation
Mass Fragmentography
Middle Age
Oxidation-Reduction
Phospholipids:. . .

RN **15514-85-9 (9-hydroxy-10,12-octadecadienoic acid)**

L16 ANSWER 7 OF 7 USPATFULL

ACCESSION NUMBER: 1998:57893 USPATFULL

TITLE: Composition of pyruvate and anti-cortisol compounds and method for increasing protein concentration in a mammal

INVENTOR(S): Beale, Paxton K., 1801 Bush St., Suite 300, San Francisco, CA, United States 94109

| | NUMBER | DATE |
|---|---|---|
| PATENT INFORMATION: | US 5756469 | 19980526 |

APPLICATION INFO.: US 1996-686820 19960726 (8)
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Weddington, Kevin E.
LEGAL REPRESENTATIVE: Nickey, Donald O.Standley & Gilcrest
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
LINE COUNT: 542
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is based, in part, upon the discovery that the use
of pyruvate in combination with a cortisol blocker, such as phosphatidylserine, produces a synergistic effect in increasing lean body mass or muscle tissue, decreasing fat deposition, increasing endurance and athletic performance of a mammal consuming same. The invention also relates to a method of treating the catabolic effects of diseases such as cancer and AIDS by the administration of pyruvate and a
cortisol blocker.

The present invention also discloses a synergistic composition comprising pyruvate and a cortisol blocker. More specifically, the present invention relates to a composition which comprises pyruvate and/or derivatives of pyruvate and phosphatidylserine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM **Conjugated linoleic acid** (CLA) is found in
cheese, lamb meat and bovine muscle tissue. Dosages of effective amounts
of CLA are not practical. . .
SUMM . . . disclose and claim a method of enhancing weight gain and feed efficiency in an animal which comprises administration of a **conjugated linoleic acid**. More specifically, these patents relate to the enteral or parenteral administration of 9,11-**octadecadienoic acid; 10,12 -octadecadienoic acid** or the non-toxic salts thereof to mammals to increase the efficiency of feed conversion. These patents also claim a method. . . weight gain or anorexia in an animal caused by immune stimulation of the animal by endotoxin through the administration of **conjugated linoleic acid** , free linoleic acid, salts thereof and mixtures thereof. Even more specifically, the '066 patent discloses and claims a method for. . .

SUMM . . . useful applications in medicine. Pyruvate has been described for retarding fatty deposits in livers (U.S. Pat. No. 4,158,057); for treating **diabetes** (U.S. Pat. No. 4,874,790); for retarding weight gain (U.S. Pat. Nos. 4,812,879, 4,548,937, and 4,351,835); to increase body protein concentrations. . .

=> index bioscience
FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 64.67 | 255.61 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| CA SUBSCRIBER PRICE | -1.18 | -22.35 |

INDEX 'ADISALERTS, ADISINSIGHT, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT,

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      CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE,
      DRUGB, DRUGLAUNCH, DRUGMONOG2, DRUGNL, ...' ENTERED AT 16:04:31 ON 08
JUN 2001

59 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view
search error messages that display as 0* with SET DETAIL OFF.

=> s ("9,11-OCTADEADIENOIC" OR "10,12-OCTADECADIENOIC") AND L13
          0*  FILE ADISALERTS
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          0*  FILE CONFSCI
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          0*  FILE PHIC
          0*  FILE PHIN
          0*  FILE SCISEARCH
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          1   FILE TOXLIT
          4*  FILE USPATFULL
  57 FILES SEARCHED...
          1   FILE WPIDS
  58 FILES SEARCHED...
          0*  FILE WPINDEX

   6 FILES HAVE ONE OR MORE ANSWERS,   59 FILES SEARCHED IN STNINDEX

L17  QUE ("9,11-OCTADEADIENOIC" OR "10,12-OCTADECADIENOIC") AND L13
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=> d rank
F1            4*  USPATFULL
F2            2*  CAPLUS
F3            1   MEDLINE
F4            1   TOXLIT
F5            1   WPIDS
F6            1*  FROSTI


=> fil f1-f6
COST IN U.S. DOLLARS                                  SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       4.95     260.56

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)            SINCE FILE      TOTAL
                                                         ENTRY    SESSION
CA SUBSCRIBER PRICE                                       0.00     -22.35

FILE 'USPATFULL' ENTERED AT 16:11:05 ON 08 JUN 2001
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FILE 'CAPLUS' ENTERED AT 16:11:05 ON 08 JUN 2001
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=> s l17
   1 FILES SEARCHED...
   4 FILES SEARCHED...
   5 FILES SEARCHED...
'CN' IS NOT A VALID FIELD CODE
L18          10 L17

=> dup rem l18
PROCESSING COMPLETED FOR L18
L19           9 DUP REM L18 (1 DUPLICATE REMOVED)

=> d ti tot

L19  ANSWER 1 OF 9  USPATFULL
TI     Synthesis of conjugated eicosadienoic acid

L19  ANSWER 2 OF 9  USPATFULL
TI     Silver ion chromatography of high purity conjugated
       linoleic acid (CLA)

L19  ANSWER 3 OF 9  CAPLUS  COPYRIGHT 2001 ACS          DUPLICATE 1
TI   Methods and compositions for treating diabetes using
     conjugated linoleic acid

L19  ANSWER 4 OF 9  USPATFULL
```

TI Use of pyruvate and anti-cortisol compounds in a method for enhancing physical endurance and athletic endurance in a mammal

L19 ANSWER 5 OF 9 TOXLIT
TI Methods and compositions for treating **diabetes** using **conjugated linoleic acid.**

L19 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2001 ACS
TI Variations in isomer distribution in commercially available **conjugated linoleic acid**

L19 ANSWER 7 OF 9 MEDLINE
TI Formation of 9-hydroxy linoleic acid as a product of phospholipid peroxidation in **diabetic** erythrocyte membranes.

L19 ANSWER 8 OF 9 USPATFULL
TI Composition of pyruvate and anti-cortisol compounds and method for increasing protein concentration in a mammal

L19 ANSWER 9 OF 9 FROSTI COPYRIGHT 2001 LFRA
TI Methods and compositions for treating **diabetes.**

=> d 9, 7 ibib abs kwic

L19 ANSWER 9 OF 9 FROSTI COPYRIGHT 2001 LFRA
ACCESSION NUMBER: 503937 FROSTI
TITLE: Methods and compositions for treating **diabetes**
INVENTOR: Vanden Heuvel J.P.; Belury M.A.; Peck L.W.
PATENT ASSIGNEE: Purdue Research Foundation; Penn State Research Foundation
SOURCE: PCT Patent Application
PATENT INFORMATION: WO 9929317 A1
APPLICATION INFORMATION: 19981211
PRIORITY INFORMATION: United States 19971212
DOCUMENT TYPE: Patent
LANGUAGE: English
SUMMARY LANGUAGE: English
AB This invention relates generally to methods of treating **diabetes** - in particular, by administering therapeutically effective food compositions. These food compositions contain **conjugated linoleic acid** (CLA) isomers, such as cis,cis-9,11-**octadecadienoic acid**, trans,cis-**10,12 -octadecadienoic acid**, or a mixture of cis,trans-9,11-**octadecadienoic acid** and trans,cis-9,11-**octadecadienoic acid.**
TI Methods and compositions for treating **diabetes.**
AB This invention relates generally to methods of treating **diabetes** - in particular, by administering therapeutically effective food compositions. These food compositions contain **conjugated linoleic acid** (CLA) isomers, such as cis,cis-9,11-**octadecadienoic acid**, trans,cis-**10,12 -octadecadienoic acid**, or a mixture of cis,trans-9,11-**octadecadienoic acid** and trans,cis-9,11-**octadecadienoic acid.**
CT **CONJUGATED LINOLEIC ACID; DIABETES** ; DIETARY SUPPLEMENTS; DIETETIC FOODS; FUNCTIONAL SUPPLEMENTS; LINOLEIC ACID; METABOLIC DISORDERS; **OCTADECADIENOIC ACID;** PATENT; PCT PATENT

L19 ANSWER 7 OF 9 MEDLINE
ACCESSION NUMBER: 1999255435 MEDLINE
DOCUMENT NUMBER: 99255435 PubMed ID: 10320803
TITLE: Formation of 9-hydroxy linoleic acid as a product of phospholipid peroxidation in **diabetic** erythrocyte membranes.
AUTHOR: Inouye M; Mio T; Sumino K
CORPORATE SOURCE: Department of Internal Medicine, Hyogo Rehabilitation Center Hospital, Akebono-cho 1070, Nishi-ku, Kobo 651-2181, Japan.
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (1999 May 18) 1438 (2) 204-12.
Journal code: A0W; 0217513. ISSN: 0006-3002.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199906
ENTRY DATE: Entered STN: 19990628
Last Updated on STN: 19990628
Entered Medline: 19990617

AB The increased production of oxygen-derived free radicals (OFR) and lipid peroxidation may contribute to vascular complications in **diabetes**. Some lipid peroxidation products have already been reported to be formed via glucose-induced oxidative stress. We have identified 9-hydroxy linoleic acid (9-OH-C18:2) in the red cell membrane phospholipid of **diabetic** subjects. We hypothesized that 9-OH-C18:2 would be formed in hydroxyl radical reactions to linoleic acid (C18:2) during glucose-induced oxidative stress, and confirmed that the formation of 9-OH-C18:2 was induced by ultraviolet (UV)-C irradiation to the synthetic C18:2. UV-C light generates highly reactive hydroxy radicals. C18:2 is confirmed to be the precursor of 9-OH-C18:2. To estimate the degree of oxidative damage to red cell membrane phospholipids, we developed a selective ion monitoring gas chromatography-mass spectrometric measurement for C18:2 and 9-OH-C18:2, following methanolysis of red cell membrane phospholipids. The relative peak height ratio of C18:2 to 9-OH-C18:2 (9-OH-C18:2/C18:2) was measured in phospholipid extracts of red cell membranes from healthy (n=29, 3.1+/-1.9%) and **diabetic** (n=27, 20. 9+/-16.1%) subjects. It was confirmed that 9-OH-C18:2/C18:2 is significantly (P<0.001) elevated in patients with **diabetes**. The measurement of 9-OH-C18:2/C18:2 in red cell membranes should be useful for assessing oxidative damage to membrane phospholipids in **diabetes**.

TI Formation of 9-hydroxy linoleic acid as a product of phospholipid peroxidation in **diabetic** erythrocyte membranes.

AB The increased production of oxygen-derived free radicals (OFR) and lipid peroxidation may contribute to vascular complications in **diabetes**. Some lipid peroxidation products have already been reported to be formed via glucose-induced oxidative stress. We have identified 9-hydroxy linoleic acid (9-OH-C18:2) in the red cell membrane phospholipid of **diabetic** subjects. We hypothesized that 9-OH-C18:2 would be formed in hydroxyl radical reactions to linoleic acid (C18:2) during glucose-induced oxidative stress,. . . ratio of C18:2 to 9-OH-C18:2 (9-OH-C18:2/C18:2) was measured in phospholipid extracts of red cell membranes from healthy (n=29, 3.1+/-1.9%) and **diabetic** (n=27, 20. 9+/-16.1%) subjects. It was confirmed that 9-OH-C18:2/C18:2 is

significantly (P<0.001) elevated in patients with **diabetes**. The measurement of 9-OH-C18:2/C18:2 in red cell membranes should be useful for assessing oxidative damage to membrane phospholipids in **diabetes**.

CT Check Tags: Female; Human; Male
Biological Markers: BL, blood
***Diabetes Mellitus, Non-Insulin-Dependent: BL, blood**
*Erythrocyte Membrane: ME, metabolism
*Linoleic Acids: BI, biosynthesis
Lipid Peroxidation
Mass Fragmentography
Middle Age
Oxidation-Reduction
Phospholipids:. . .

RN **15514-85-9 (9-hydroxy-10,12-octadecadienoic acid)**

=> log y

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 26.56 | 287.12 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| CA SUBSCRIBER PRICE | 0.00 | -22.35 |

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